

**SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND
FINDING OF NO SIGNIFICANT IMPACT**

**DAM SAFETY MODIFICATIONS AT CHEROKEE, FORT
LOUDOUN, TELlico, AND WATTS BAR DAMS**

Grainger, Jefferson, Loudoun, Rhea, and Meigs Counties, Tennessee

Prepared by:
TENNESSEE VALLEY AUTHORITY
Knoxville, Tennessee

December 2017

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Purpose and Need for Action

The Tennessee Valley Authority (TVA) undertook a dam remediation project in 2014 to correct safety deficiencies at four dam structures: Cherokee, Fort Loudoun, Tellico, and Watts Bar. Major portions of the Fort Loudoun Dam rehabilitation project were conducted between 2014 and 2015. However, in 2015 Tennessee Department of Transportation (TDOT) began roadway construction for a new bridge near Fort Loudoun Dam that caused TVA to cease construction as the area was no longer accessible to TVA. Part of TDOT's scope included demolition of the Carmichael Greer Bridge. As a result, TDOT permanently closed the remaining segment of U.S. Highway 321 between the south abutment of Carmichael Greer Bridge and Tellico Parkway for safety and security purposes. As the design was refined, it was decided to close the segment of U.S. Highway 321 permanently to provide TVA with vehicle access for future maintenance activities. TDOT completed construction of portions of the roadway in 2017, including removing the Carmichael Greer Bridge which would allow TVA to remobilize and complete the remaining probable maximum flood (PMF) modifications outlined in the 2014 supplemental environmental analysis. As a result of the TDOT construction, traffic on Highway 321 was rerouted from the Carmichael Greer Bridge to a new bridge located 2,000 feet downstream. This reroute directly intersected TVA's existing service road north of Tellico Parkway (Figure 1) and the original material staging areas proposed in previous environmental reviews. This reroute necessitated the construction of a new access point to the construction area as well as two new temporary material staging areas closer to the location of the proposed dam modifications. The additional locations of the staging areas, as well as the new access/maintenance road are proposed in order to provide a safer transportation route between the new material staging areas and the areas of Fort Loudoun Dam proposed for construction. The new locations would allow TVA and construction contractors to safely travel between the staging areas and construction areas without having to cross a public transportation route. These actions were not within the scope of the previous environmental reviews of the Fort Loudoun Dam safety modification project. Thus, TVA is conducting this supplemental environmental review consistent with the requirements of the National Environmental Policy Act.

Proposed Action

TVA proposes to construct a new access/maintenance road from the crest of the dam traversing the downstream slope of the embankment and connect the new road to an existing TVA service road, located west and parallel to US-321, and utilize existing cleared and graded areas as additional temporary material staging areas. TVA also proposes to install up to six piezometers to monitor pore pressure during construction of the access/maintenance road and abandon a monitoring well located near the downstream slope of the embankment.

Background and Other Environmental Reviews and Documentation

This document is the second supplement to the Tennessee Valley Authority (TVA) *Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams Final Environmental Impact Statement* (TVA 2013). The scope of that Environmental Impact Statement (EIS) included removing temporary HESCO barriers (collapsible wire mesh containers filled with sand) and installing permanent dam modifications utilizing a combination of concrete floodwalls and raised earthen embankments.

In 2014, TVA updated its approach for the dam modification projects to include the incorporation of roller compacted concrete (RCC) and a minimal increase in the elevations of the modifications at Fort Loudoun, Watts Bar, and Tellico. Consequently, a supplement to the 2013 EIS was issued, *Revisions to Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and*

Watts Bar Dams (TVA 2014), to document the potential environmental effects of the updated permanent modifications.

The findings of these two environmental reviews remain pertinent. Both documents are incorporated by reference.

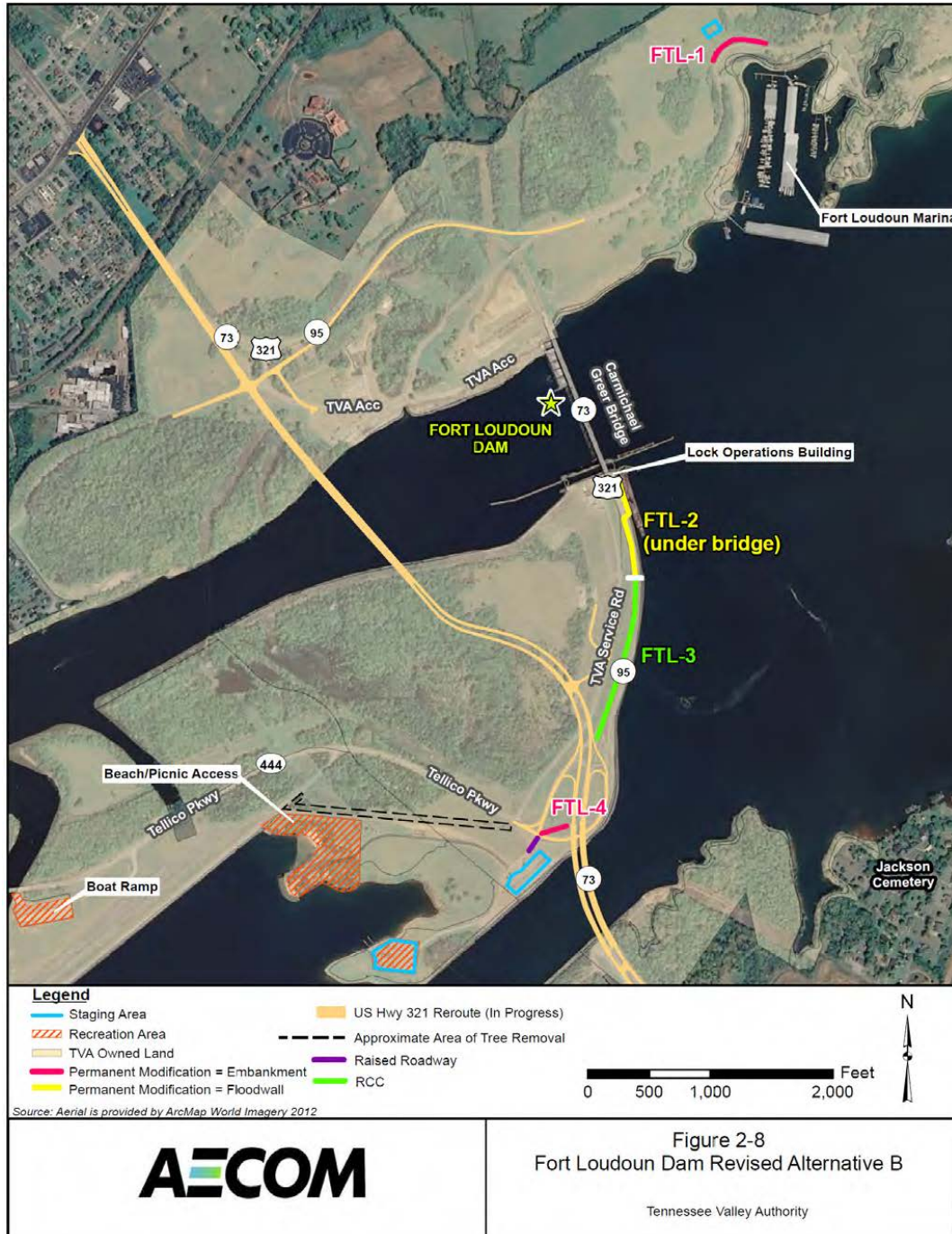


Figure 1. Aerial view of the original proposed Action Alternative from the 2013 EIS and 2014 supplemental environmental reviews.

Permits, Licenses, and Approvals

TVA would secure all appropriate construction and operating permits as discussed in the 2013 and 2014 environmental reviews and would comply with the requirements of those permits. TVA would obtain a National Pollutant Discharge Elimination System Construction Stormwater General Permit that would be required for the proposed action.

Alternatives

For the purposes of this supplemental environmental review, two feasible alternatives were developed: The Action Alternative and the No Action Alternative.

No Action Alternative

Under the No Action Alternative, TVA would not construct a new access/maintenance road, utilize additional material staging areas, install up to six (6) piezometers or abandon the monitoring well. The No Action Alternative would not provide access to the crest of the dam preventing TVA from continuing construction activities associated with the dam safety modifications and therefore would not fulfill the purpose and need. However, the No Action Alternative serves as a baseline for evaluating the potential effects of implementing the Action Alternative.

Action Alternative

Under the Action Alternative, TVA would perform the following actions:

Construct an Access/Maintenance Road: A paved roadway, approximately 650 feet long and 18 feet wide, would be constructed from the crest of the dam traversing the downstream slope of the embankment and connect to an existing TVA service road (Figure 2). The road structure would consist of sand, crushed aggregate, and rip-rap, base stone and an asphalt concrete surface. The paved road would provide access to the crest of the dam for constructing a new RCC floodwall as described in the 2014 supplemental environmental analysis, as well as additional maintenance access for TVA activities in the future. All access to the crest of the dam would be via the newly constructed access road and the segment of U.S. Highway 321 that TDOT has permanently closed to the public. See Attachment 1 for additional detail.



Figure 2. Aerial view of the proposed Action Alternative.

Install Piezometers: TVA plans to install up to six vibrating wire piezometers (a device that measures pore water pressure) in the area of the access road to allow for monitoring pore pressures during construction and operation of the access/maintenance road. The piezometers are approximately 2.5 feet high and would be flanked by bollards (a short, sturdy, vertical post) located approximately 100 feet apart. See Attachment 1 for additional detail.

Abandon a Monitoring Well: A monitoring well installed near the downstream slope of the embankment would be abandoned due to its proximity to the project construction area. Abandonment would be performed by over-drilling to remove the instrument materials and filled with grout from the bottom to the ground surface in accordance with TVA's internal procedures for groundwater and Solid Waste Environmental Compliance and Operations.

Utilize New Temporary Material Staging Areas: Two existing disturbed sites, located south of the Fort Loudoun lock and dam, would be utilized as temporary laydown and material staging areas. Laydown areas would be used by TVA and construction personnel for an onsite office facility, vehicle and construction equipment parking, and stockpiling materials and tools, necessary to construct the access/maintenance road and perform the dam safety modifications described in previous environmental reviews. The primary office facility and laydown area would be directly off the existing TVA Service Road. If the primary area is insufficient, a secondary laydown area would be utilized and accessed from the existing fishing access road (Figure 1).

Preferred Alternative

The Action Alternative is TVA's preferred alternative.

Affected Environment and Anticipated Impacts

Site Description

The environmental setting of Fort Loudoun Dam and its surroundings was described in the original EIS (TVA 2013). That description and the additional description provided in the supplemental analysis (TVA 2014) remain valid.

Impacts Evaluated

Based on the two previous environmental reviews (TVA 2013; TVA 2014), TVA determined that there would be no significant environmental effects to the following environmental resources: geology and soils, surface water quality, aquatic life, wetlands, terrestrial ecology, endangered and threatened species, natural areas, recreation, visual quality, cultural resources, air quality, floodplains, transportation, noise, land use, socioeconomics, and environmental justice. Those previous environmental reviews did conclude that the Fort Loudoun Dam Rehabilitation Project would result in significant environmental effects to transportation from the temporary closure of the Carmichael Greer Bridge; however, since those analyses, TDOT has permanently closed this bridge.

The No Action Alternative would not allow TVA to continue dam safety modification construction at Fort Loudoun Dam, and therefore would have no environmental impact that was not already analyzed in the original 2013 and 2014 environmental reviews. Thus, this supplemental analysis focuses on the potential environmental effects of implementing the Action Alternative.

TVA performed an internal review of the proposed Action Alternative and identified all resources present within the project area. TVA interdisciplinary team of experts reviewed the proposal to identify relevant environmental issues and documented their findings in the attached Checklist

(Attachment 1). The team found that, due to the nature of the proposed actions, implementing the Action Alternative would result in either no or *de minimis* environmental effects to the following environmental resources: geology and soils, surface water quality, aquatic life, wetlands, terrestrial ecology, endangered and threatened species, natural areas, recreation, visual quality, air quality, floodplains, transportation, noise, land use, socioeconomics, and environmental justice. During this review, TVA determined that additional evaluation was necessary to consider potential impacts to cultural resources. The results of that analysis and TVA's determination that the proposed action would not significantly affect cultural resources are summarized below.

Cultural Resources

TVA determined the Area of Potential Effect (APE) for archaeological resources to be all areas where ground disturbing activities would occur. No archaeological resources have been identified within the APE and therefore TVA has determined that no archaeological sites would be affected by the proposed Action Alternative. TVA determined the APE for above ground architectural resources to be areas within a 0.5 mile radius of the proposed Action Alternative, in which one architectural resource was identified, the Fort Loudoun Lock and Dam. TVA determined that implementation of the proposed Action Alternative would have a visual effect on Fort Loudoun Dam, but the effect would not be adverse. TVA consulted with the SHPO on this finding in November 2017, and the SHPO agreed by letter dated November 21, 2017, with TVA's determination that the effects of the Action Alternative on Fort Loudoun Lock and Dam would not be adverse.

Cumulative Impacts

The same types of activities proposed in this supplemental environmental assessment have been previously identified in the original 2013 EIS and supplemental analysis. Although the general location of these activities has changed, the impacts have not increased. Thus, the change in scope would not result in additional cumulative impacts.

Mitigation Measures

The commitments and mitigation measures listed in Section 2.3 of the 2013 EIS and the mitigation measures enumerated in the 2014 supplemental analysis would remain in effect.

Conclusion and Findings

Based on the findings listed above and the analyses in the attached checklist, we conclude that the proposed action to construct a new access road and utilize new temporary material staging areas would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



Susan R. Jacks, Senior Manager
Project Environmental Planning
Tennessee Valley Authority

_____ 12/04/2017

Date Signed

TVA Preparers

Ashley Pilakowski – NEPA document preparation

Lori Whitehorse – NEPA document preparation

Marianne Shuler – NEPA document preparation

References

Tennessee Valley Authority. 2013 *Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams Final Environmental Impact Statement*.

Tennessee Valley Authority. 2014. *Revisions to Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams Supplemental Analysis*.

Attachments

Categorical Exclusion Checklist for Proposed TVA Actions – FLH RCC Project Upgrades

Categorical Exclusion Checklist for Proposed TVA Actions

Categorical Exclusion Number Claimed	Organization ID Number	Tracking Number <i>(NEPA Administration Use Only)</i> 37563	
Form Preparer Lori A Whitehorse	Project Initiator/Manager Aaron Nottis	Business Unit River Operations - Hydro Production	
Project Title FLH RCC Project Upgrades			Hydrologic Unit Code
Description of Proposed Action <i>(Include Anticipated Dates of Implementation)</i> For Proposed Action See Attachments and References		<input type="checkbox"/>	Continued on Page 3 <i>(if more than one line)</i>
Initiating TVA Facility or Office Fort Loudoun Hydro Plant		TVA Business Units Involved in Project	
Location <i>(City, County, State)</i> Loudon, TN, South Embankment			

Parts 1 through 4 verify that there are no extraordinary circumstances associated with this action:

Part 1. Project Characteristics

Is there evidence that the proposed action...	No	Yes	Commit- ment	Information Source for Insignificance
1. Is major in scope?	X			Whitehorse, Lori A. 09/27/2017
2. Is part of a larger project proposal involving other TVA actions or other federal agencies?		X		For comments see attachments
* 3. Involves non-routine mitigation to avoid adverse impacts ?	X		No	Whitehorse, Lori A. 09/27/2017
4. Is opposed by another federal, state, or local government agency?	X			Whitehorse, Lori A. 09/27/2017
* 5. Has environmental effects which are controversial?	X			Whitehorse, Lori A. 09/27/2017
* 6. Is one of many actions that will affect the same resources?	X			Whitehorse, Lori A. 09/27/2017
7. Involves more than minor amount of land?	X			Whitehorse, Lori A. 09/27/2017

*If "yes" is marked for any of the above boxes, consult with NEPA Administration on the suitability of this project for a categorical exclusion.

Part 2. Natural and Cultural Features Affected

Would the proposed action...	No	Yes	Permit	Commitment	Information Source for Insignificance
1.Potentially affect endangered, threatened, or special status species?	X		No	No	Whitehorse, Lori A. 09/27/2017
2.Potentially affect historic structures, historic sites, Native American religious or cultural properties, or archaeological sites?		X	No	No	For comments see attachments
3.Potentially take prime or unique farmland out of production?	X		No	No	Whitehorse, Lori A. 09/27/2017
4.Potentially affect Wild and Scenic Rivers or their tributaries?	X		No	No	Whitehorse, Lori A. 09/27/2017
5.Potentially affect a stream on the Nationwide Rivers Inventory?	X		No	No	Whitehorse, Lori A. 09/27/2017
6.Potentially affect wetlands?	X		No	No	Whitehorse, Lori A. 09/27/2017
7.Potentially affect water flow, stream banks or stream channels?	X		No	No	Whitehorse, Lori A. 09/27/2017
8.Potentially affect the 100-year floodplain?	X		No	No	Whitehorse, Lori A. 09/27/2017
9.Potentially affect ecologically critical areas, federal, state, or local park lands, national or state forests, wilderness areas, scenic areas, wildlife management areas, recreational areas, greenways, or trails?	X		No	No	Whitehorse, Lori A. 09/27/2017
10.Contribute to the spread of exotic or invasive species?	X		No	No	Whitehorse, Lori A. 09/27/2017
11.Potentially affect migratory bird populations?	X		No	No	Whitehorse, Lori A. 09/27/2017
12.Involve water withdrawal of a magnitude that may affect aquatic life or involve interbasin transfer of water?	X		No	No	Whitehorse, Lori A. 09/27/2017
13.Potentially affect surface water?	X		No	No	Whitehorse, Lori A. 09/27/2017
14.Potentially affect drinking water supply?	X		No	No	Whitehorse, Lori A. 09/27/2017
15.Potentially affect groundwater?	X		No	No	Whitehorse, Lori A. 09/27/2017
16.Potentially affect unique or important terrestrial habitat?	X		No	No	Whitehorse, Lori A. 09/27/2017
17.Potentially affect unique or important aquatic habitat?	X		No	No	Whitehorse, Lori A. 09/27/2017

Part 3. Potential Pollutant Generation

Would the proposed action potentially (including accidental or unplanned)...	No	Yes	Permit	Commitment	Information Source for Insignificance
1.Release air pollutants?	X		No	No	Whitehorse, Lori A. 09/27/2017
2.Generate water pollutants?	X		No	No	Whitehorse, Lori A. 09/27/2017
3.Generate wastewater streams?	X		No	No	Whitehorse, Lori A. 09/27/2017
4.Cause soil erosion?	X		No	No	Whitehorse, Lori A. 09/27/2017
5.Discharge dredged or fill materials?	X		No	No	Whitehorse, Lori A. 09/27/2017
6.Generate large amounts of solid waste or waste not ordinarily generated?	X		No	No	Whitehorse, Lori A. 09/27/2017
7.Generate or release hazardous waste (RCRA)?	X		No	No	Whitehorse, Lori A. 09/27/2017
8.Generate or release universal or special waste, or used oil?	X		No	No	Whitehorse, Lori A. 09/27/2017
9.Generate or release toxic substances (CERCLA, TSCA)?	X		No	No	Whitehorse, Lori A. 09/27/2017
10.Involve materials such as PCBs, solvents, asbestos, sandblasting material, mercury, lead, or paints?	X		No	No	Whitehorse, Lori A. 09/27/2017
11.Involve disturbance of pre-existing contamination?	X		No	No	Whitehorse, Lori A. 09/27/2017
12.Generate noise levels with off-site impacts?	X		No	No	Whitehorse, Lori A. 09/27/2017
13.Generate odor with off-site impacts?	X		No	No	Whitehorse, Lori A. 09/27/2017
14.Produce light which causes disturbance?	X		No	No	Whitehorse, Lori A. 09/27/2017
15.Release of radioactive materials?	X		No	No	Whitehorse, Lori A. 09/27/2017
16.Involve underground or above-ground storage tanks or bulk storage?	X		No	No	Whitehorse, Lori A. 09/27/2017
17.Involve materials that require special handling?	X		No	No	Whitehorse, Lori A. 09/27/2017

Signature

Signature

Other Review Signatures (as required by your organization)

Lori A Whitehorse 12/04/2017

Signature

Signature

Ashley Pilakowski 12/04/2017

Signature

Signature

Signature

Signature

Attachments/References

Description of Proposed Action Continued from Page 1

Install a paved access/maintenance road, install up to six (6) piezometers to monitor pore pressures during construction of the access/maintenance road, abandon one (1) monitoring well and construct two (2) laydown areas to be used for office trailers, equipment, material and tool storage, and parking. Please see attached SOW for more information.

CEC General Comment Listing

1. SOW and map
By: Lori A Whitehorse 09/27/2017
Files: FLH RCC Project Upgrades.docx 12/04/2017 14.46 Bytes
FLH S Embankment_R1.pdf 10/20/2017 77.48 Bytes
2. Presently a glitch in Entrac is not allowing anyone to add comments to questions or answer yes to questions. Therefore the questions that need additional comments will be added here.
Part 3, Question 2 - Yes; This work will likely occur close to the water and best management practices will be used to prevent the introduction of soil or any other pollutants into nearby water.
Part 3, Question 4 - Yes; Best management practices will be used to prevent the introduction of soil or any other pollutants into nearby water. Any surface soil disturbance will be repaired and returned to the pre-construction condition which may require minor re-grading to fill in ruts and re-seeding. The extent of the site disturbance will be minimized.
Part 4, Question 2 - Yes; Construction will occur in areas accessible to the public. Appropriate barriers and notifications will be maintained based on level of public use to keep the public away from the equipment.
• Part 4, Question 10 - No; All traffic has been diverted to the new bridge. The location this work will occur is closed to public traffic.
• Part 5, Question 1 - Yes; The amount of asphalt laid in cubic yards and average thickness of the asphalt need to be submitted to the site environmental scientist for the annual TRI report.
By: Lori A Whitehorse 09/27/2017
3. Piezometer and access/maintenance road drawings
By: Lori A Whitehorse 09/28/2017
Files: Piezometer Drawing.pdf 09/28/2017 183.26 Bytes
Access_Maintenance Road Drawings.pdf 09/28/2017 541.69 Bytes
4. TVA-SPP-05.052
By: Lori A Whitehorse 11/16/2017
Files: ECO Final Dra170900359.pdf 11/16/2017 86.41 Bytes

CEC Comment Listing

Part 1 Comments

2. An EA was completed in 2013 that evaluated the proposed permanent solutions for the temporary measures, which were put in place to correct safety deficiencies previously identified at Cherokee, Fort Loudoun, Tellico and Watts Bar Dams. The other projects have been completed. Only a small section at Fort Loudoun dam needs to be completed.
By: Lori A Whitehorse 11/17/2017

Part 2 Comments

2. Thlopthocco response
By: Marianne M Shuler 12/04/2017
Files: Thlopthocco THPO Response.pdf 12/04/2017 416.66 Bytes
2. TVA finds the undertaking will have no adverse effect to historic properties (see attached) "CEC37563_70844_section106.pdf" for supporting documentation.
By: Marianne M Shuler 12/04/2017
Files: CEC37563_70844_Section106.pdf 12/04/2017 1,758.98 Bytes

2.	SHPO response		
	By: Marianne M Shuler	12/04/2017	
	Files: TVA_FLH RCC_Loudon Co_SHPO_Response	12/04/2017	242.82 Bytes
	27Nov2017.pdf		
2.	Tribal Letter		
	By: Marianne M Shuler	12/04/2017	
	Files: TVA_FLH RCC_Loudon County	12/04/2017	2,779.64 Bytes
	TN_TRIBAL_CID70844_3Nov2017.pdf		
2.	SHPO Letter		
	By: Marianne M Shuler	12/04/2017	
	Files: TVA_FLH RCC_Loudon County	12/04/2017	2,574.49 Bytes
	TN_SHPO_CID70844_23OCT2017.docx		
2.	Shawnee response		
	By: Marianne M Shuler	12/04/2017	
	Files: FW_TVA_FLH	12/04/2017	95.30 Bytes
	RCC_LoudonCounty_TN_CID70844_3Nov17_Shawnee		
	response.pdf		

CEC Permit Listing

CEC Commitment Listing

FLH RCC Project Upgrades

Access/Maintenance Road: A paved roadway, approximately 650 feet long, will be constructed from the crest of the dam traversing the downstream slope of the embankment and connecting with the TVA service road. The road structure consists of sand placed against the embankment surface, crushed aggregate, and rip-rap, base stone and an asphalt concrete surface. The road surface will be approximately eighteen (18) feet wide. The paved road will provide access to the crest of the dam for the purposes of constructing the new RCC floodwall. Subsequently, the paved road will provide maintenance access for TVA for purposes of future inspection work. Part of TDOT's scope of work includes demolition of the Carmichael Greer Bridge, as such, TDOT has permanently closed the remaining segment of U.S. Highway 321 between the south abutment of Carmichael Greer Bridge and Tellico Parkway for safety and security purposes. As the design was refined beyond the 30% level (basis of original EIS) it was decided to leave the road permanently to provide TVA with vehicle access for future maintenance activities. All access to the crest of the dam will be via the newly constructed access road. Drawing 23W232-208 provides a plan and profile view of the access road and Drawings 23W232-209 through 23W232-211 show cross-sections of the said roadway.

Piezometers: Up to six (6) instruments in the area of the access road are planned for installation to allow for monitoring of pore pressures during construction of the access/maintenance road. The two instruments will be fully grouted vibrating wire piezometers located approximately 100 feet apart, centered at Station 135+/- of the dam baseline. Following completion, the lead wires will be trenched away from the work zone and be offset from the crest to allow for monitoring during construction. Drawing 23W232-402 provides details of the planned piezometers.

Monitoring Well Abandonment: A monitoring well installed near the downstream slope of the embankment as part of an assessment study in the 1980's will be abandoned. According to the STI, no documentation for the wells is available to provide information including details of the installation, the as-built condition of the wells, or history of water level measurements. Well completion details are unavailable and the groundwater wells are not currently monitored or maintained as a component of the instrumentation plan. Abandonment will be performed by over-drilling to remove the instrument materials and grouted from the bottom to the ground surface in accordance with TVA procedures.

Laydown Area: A laydown area will be set-up and used by the Contractor for an onsite office facility, stockpile materials, tools, and equipment necessary to execute the scope of work. The office facility and primary laydown area will be directly off the TVA Service Road. If the primary area is insufficient, a secondary laydown area is delineated will be used which is accessed from the fishing access road. This laydown areas will also be utilized by TVA personnel. Access to the laydown and office facilities will be by the TVA Service Road. Vehicle parking, for related construction activity, will be designated at the office facility and laydown areas.

© 2012 Google



Approx. location of laydown/trailer area

Approx. location of access/maintenance roadway

Approx. location of well to be abandoned

Approx. location of piezometers

TNA Service Rd

TNA Service Rd

321

321

321

© 2012 Google

© 2012 Google

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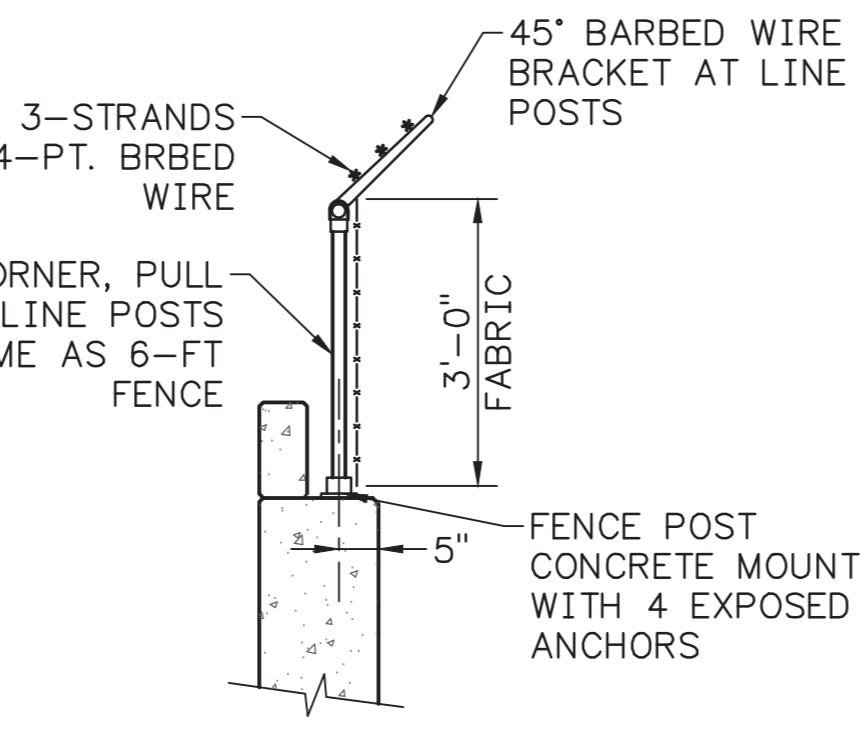
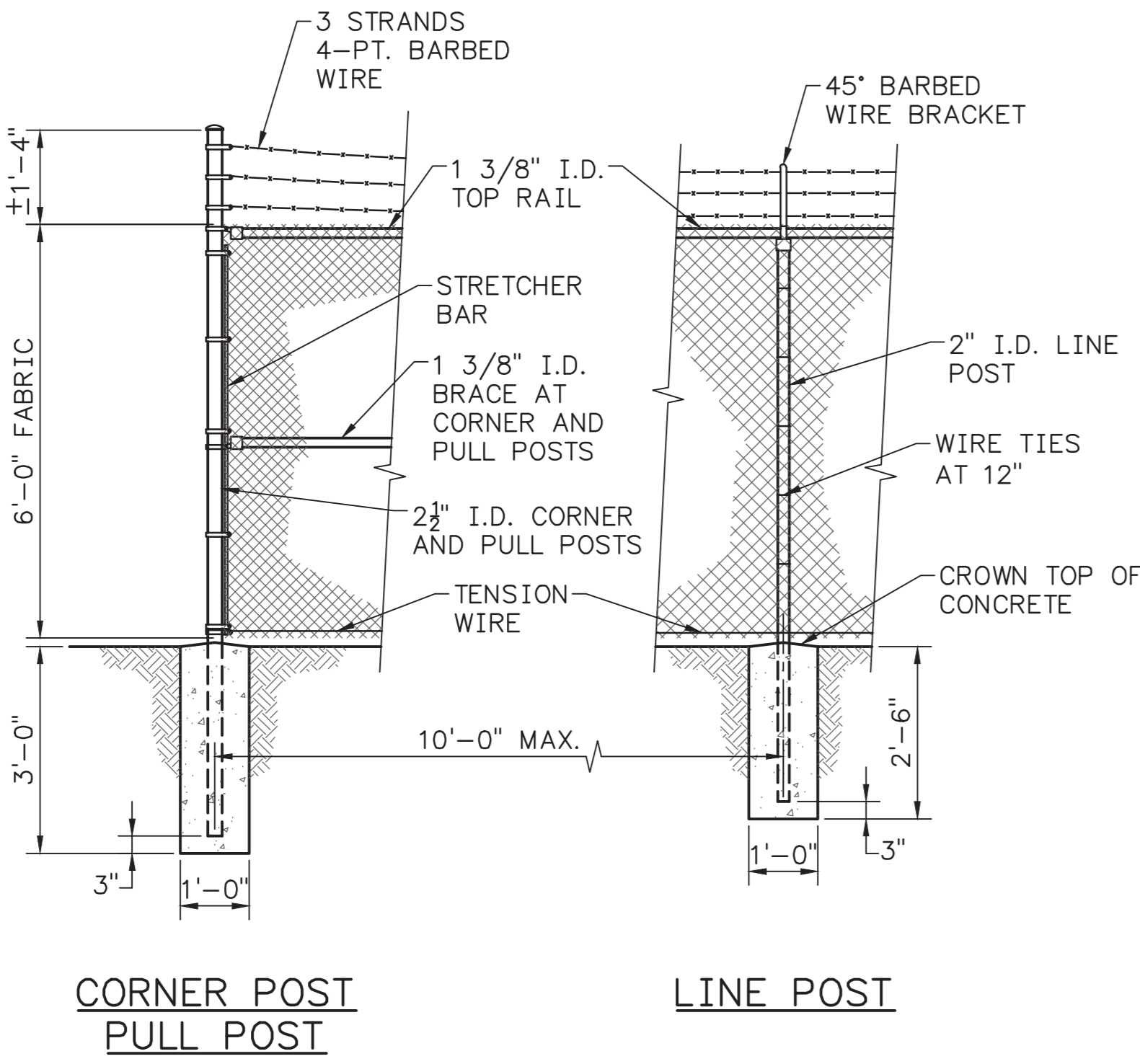
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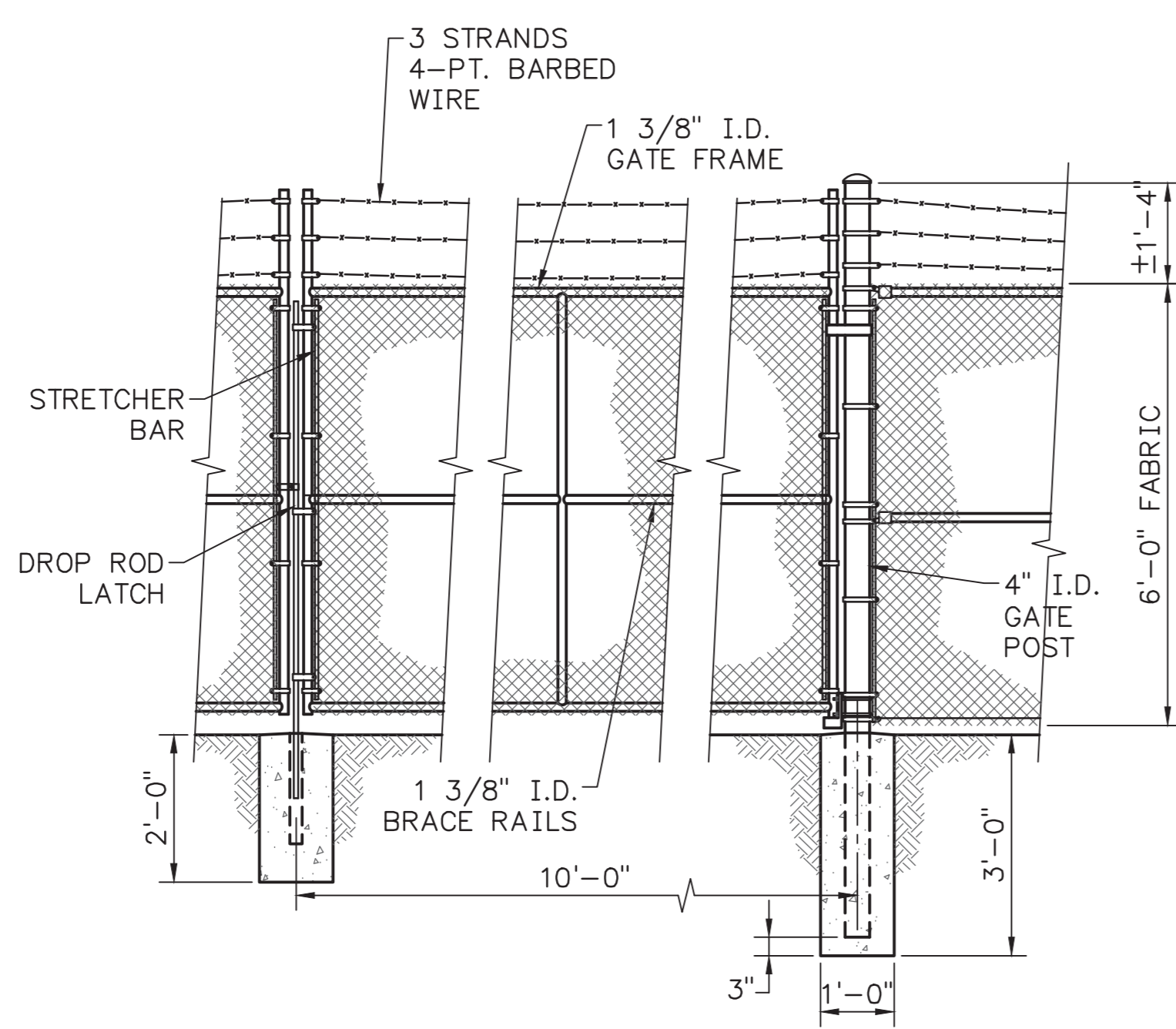
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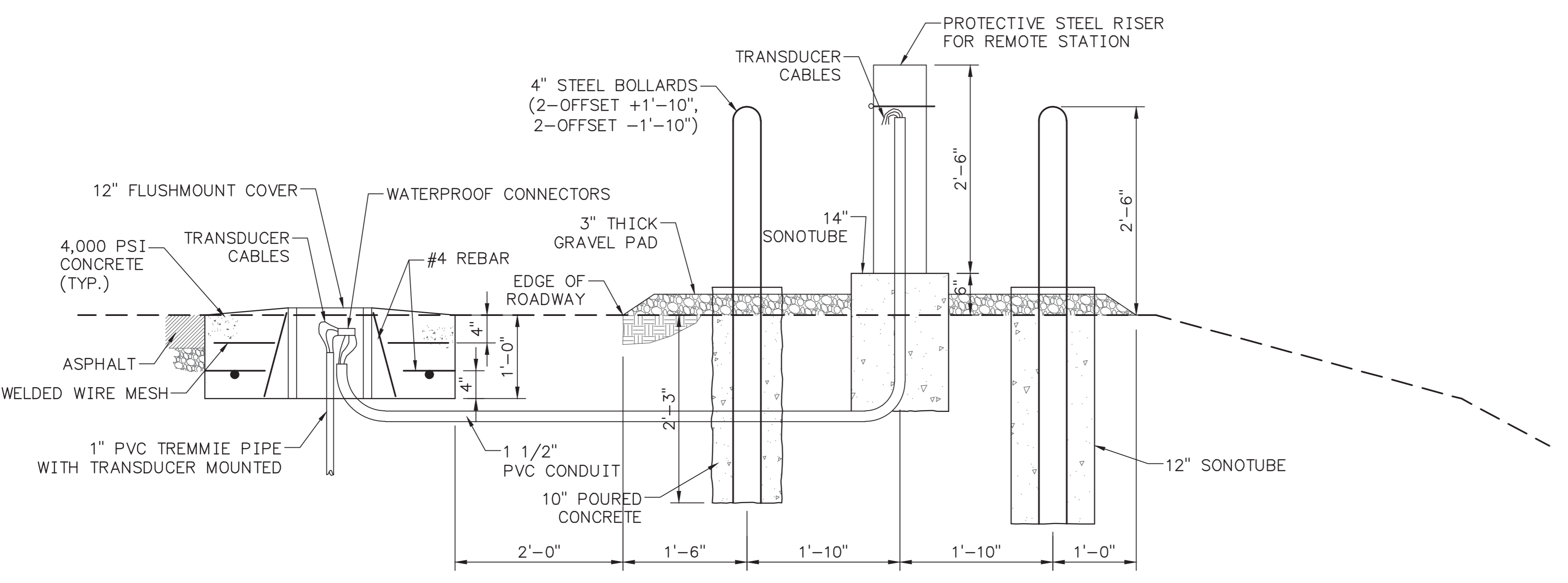
TYPICAL SECTION AT FLOOD WALL

NOTE:
PULL POSTS EQUALLY SPACED (200' MAX.) AND AT ALL SHARP BREAKS IN TERRAIN.

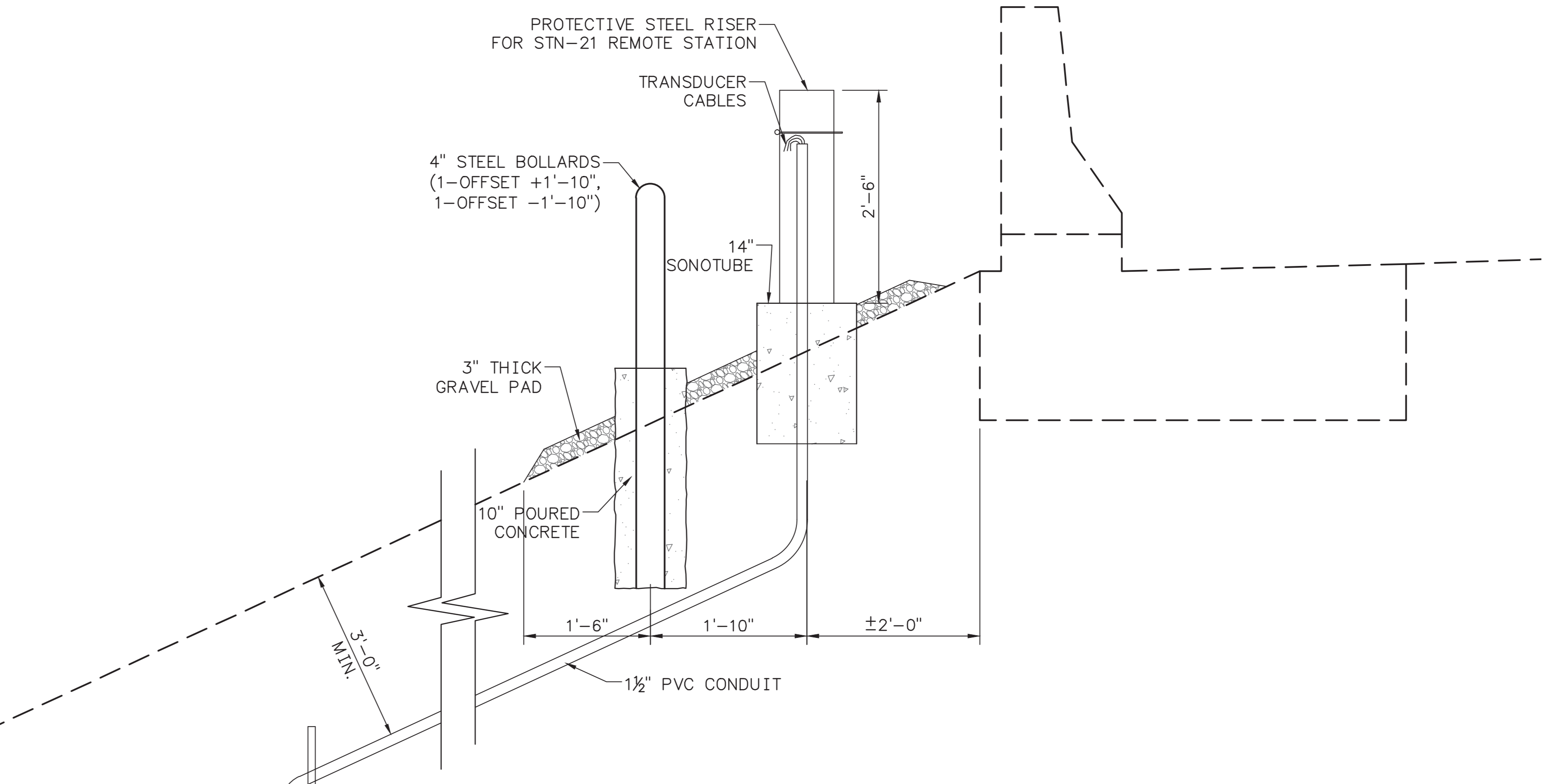
13 DETAIL - FENCE
23W232-402 SCALE: 1/2"=1'-0"



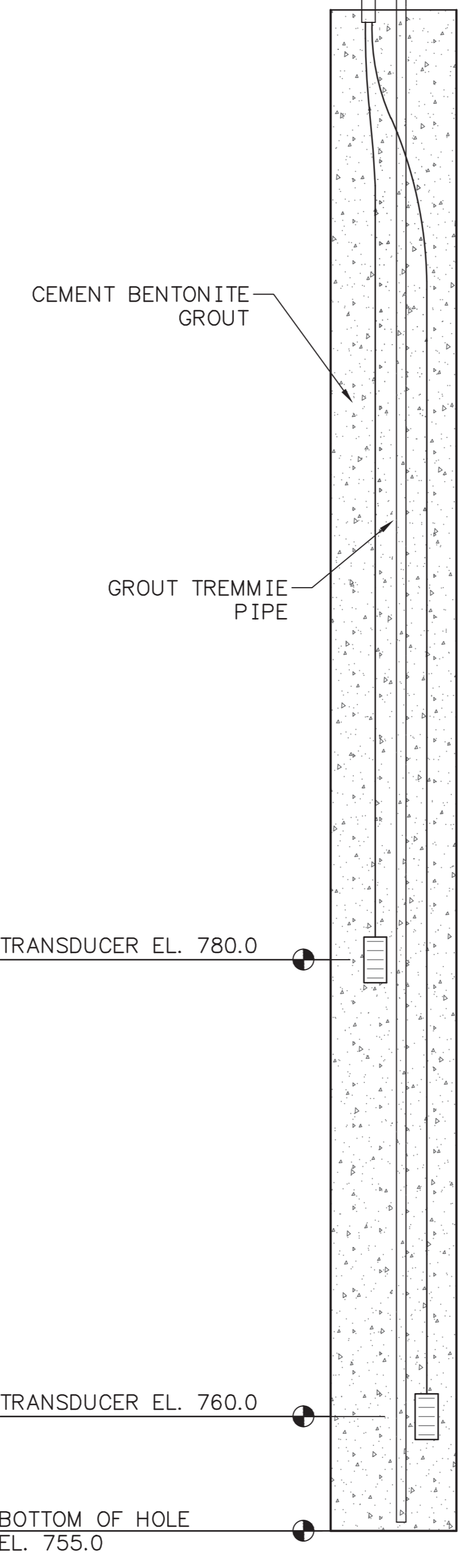
14 DETAIL - GATE
23W232-402 SCALE: 1/2"=1'-0"



15 DETAIL - VIBRATING PZ ELEVATION LAYOUT
23W232-402 SCALE: 1"=1'-0"

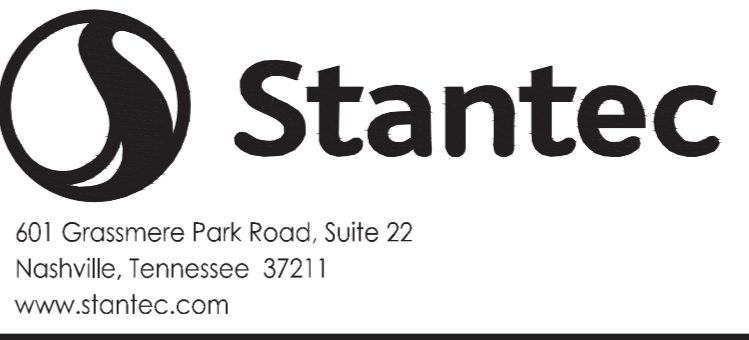


16 DETAIL - VIBRATING WIRE PZ INSTALLATION
23W232-402 NOT TO SCALE



ISSUED FOR CONSTRUCTION

DESIGNED BY	T.S. MARSHALL	DRAWN BY	P. SILPACHARN	CHECKED BY	S.F. FIELD	SUPERVISED BY	S.F. FIELD	REVIEWED BY	N/A	APPROVED BY	N/A	ISSUED BY	P.V. KISER
SOUTH EMBANKMENT - SR 73/US 321 PMF MODIFICATIONS TYPICAL SECTIONS AND DETAILS FORT LOUDOUN HYDRO PROJECT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING													
AUTOCAD R 2010	DATE	09/11/15	10	C	23W232-402	R 0							

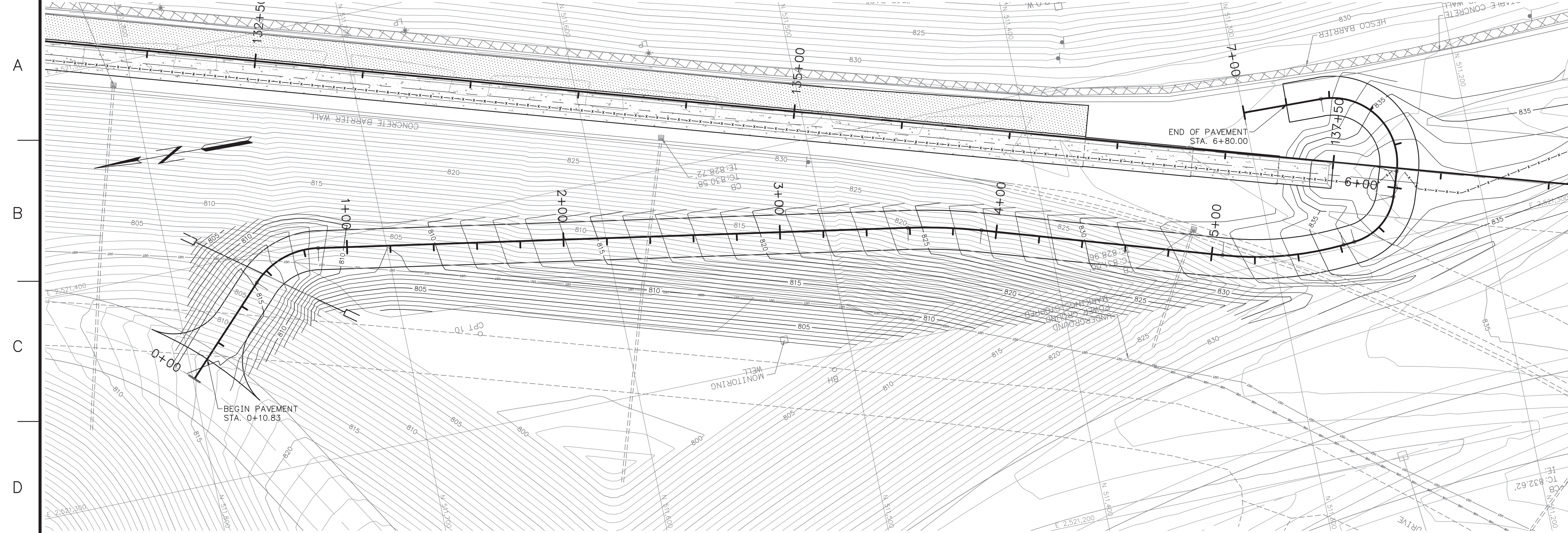


SEE 23W232-102 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

STANTEC	0
TASK COMPLETED BY:	REV NO.

DRAWING CHANGE AUTHORIZATION					
Rev.	Prepared	Date	Checked	Date	Change Reference & Rev.
RO	T.S. MARSHALL	09/11/15	S.F. FIELD	09/11/15	116500868 REV 0
Checked No.	6622	Sheet	N/A	Approved Date Drawing No.	23W232-402
DCA Description	NONE	Scale	0	DCA No.	DCA-FLH-116500868-C024
Discipline	CIVIL	Unit	0	DCA BLOCK REV.	1

PLOT DATE: 09/10/2015 USER: SILPACHARN, PRAVITH (011/15) FILE: \\PVA\ACT\15120628\ENR\DRWING\DRWING\23W232-402-402.DWG

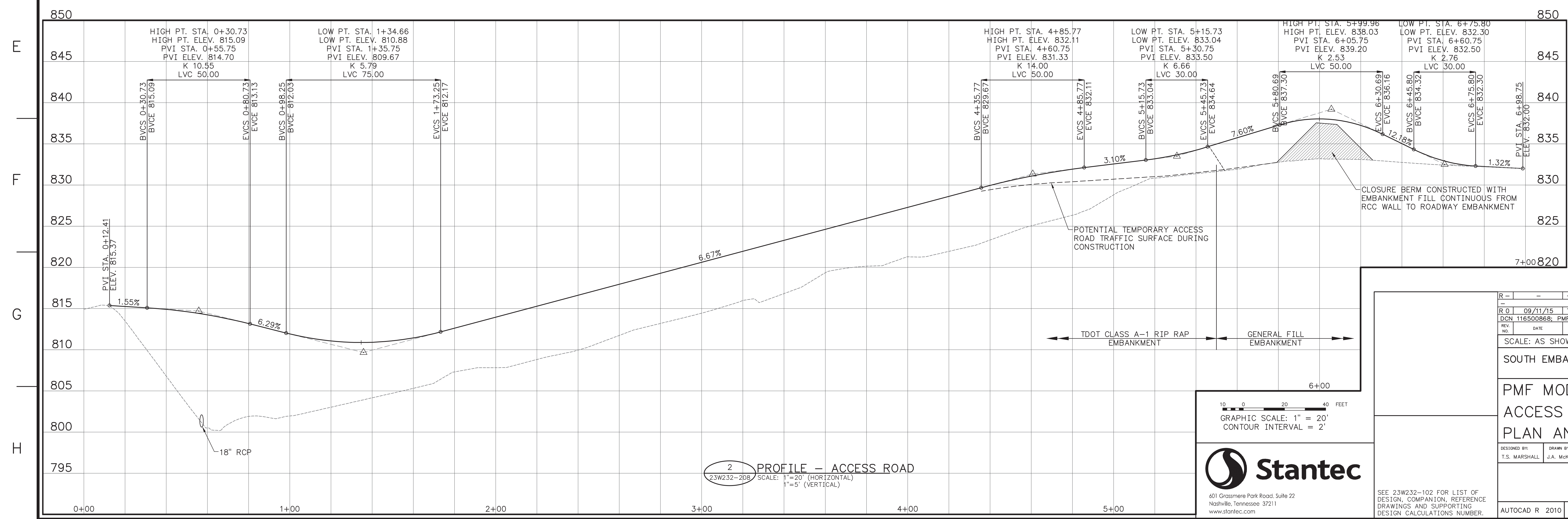


SURVEY CONTROL NOTE:
 A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751-8416 OR (423)751-2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

TOPOGRAPHIC MAPPING SOURCE NOTE:
 TOPOGRAPHIC MAPPING WAS OBTAINED FROM A CONVENTIONAL SURVEY PERFORMED BY JAMES + ASSOCIATES, INC. ON OCTOBER 29, 30 AND 31, 2012 AS WELL AS NOVEMBER 1, 8, 13, 14, 15, 2012. TOPOGRAPHIC MAPPING IS PRESENTED IN NAD27 HORIZONTAL DATUM AND NGVD VERTICAL DATUM.

- LEGEND**
- LIGHT POLE
 - ⊕ LIGHT POLE SIGN
 - DROP BOX INLET
 - UNDERGROUND ELECTRIC LINE
 - FENCE LINE
 - EDGE OF WATER
 - INDEX CONTOUR
 - INTERMEDIATE CONTOUR
 - ▨ HESCO BARRIER
 - LIMITS OF CONSTRUCTION
 - SILT FENCE
 - PROPOSED CURB INLET PROTECTION
 - PROPOSED EDGE OF PAVEMENT
 - BASELINE TANGENT LABEL
 - BASELINE
 - ▨ PROPOSED ROLLER COMPACTED CONCRETE

1 PLAN - ACCESS ROAD
 SCALE: 1"=20'



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2 PROFILE - ACCESS ROAD
 SCALE: 1"=20' (HORIZONTAL)
 1"=5' (VERTICAL)



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SEE 23W232-102 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

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DCN 116500868; PMF MODIFICATIONS												
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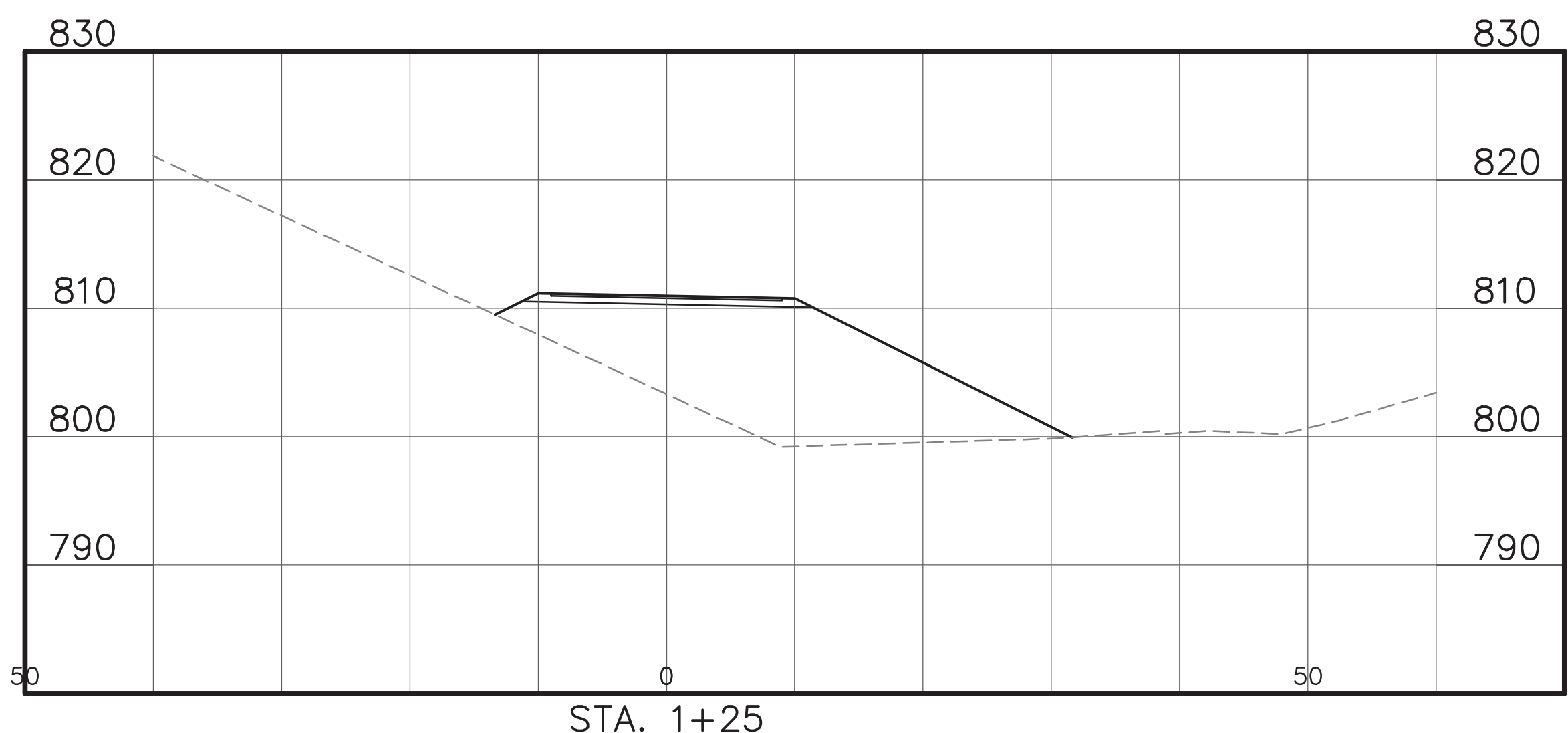
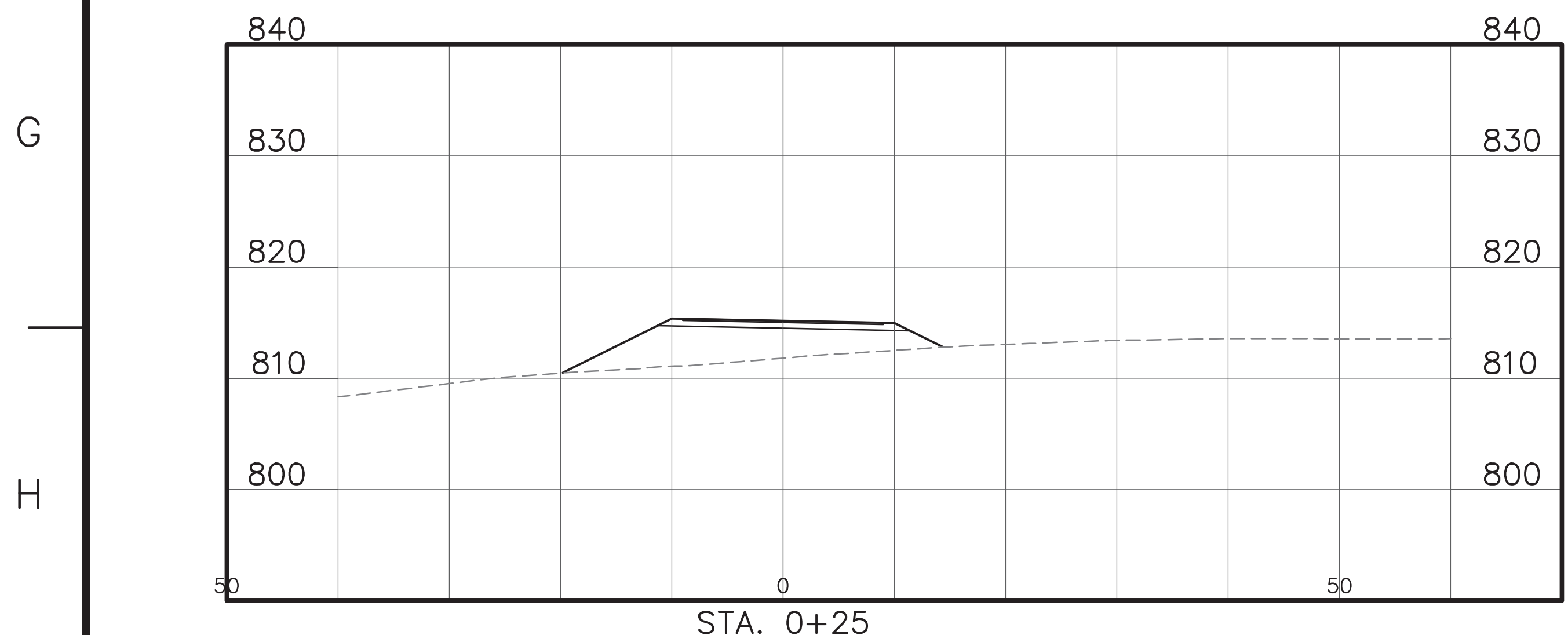
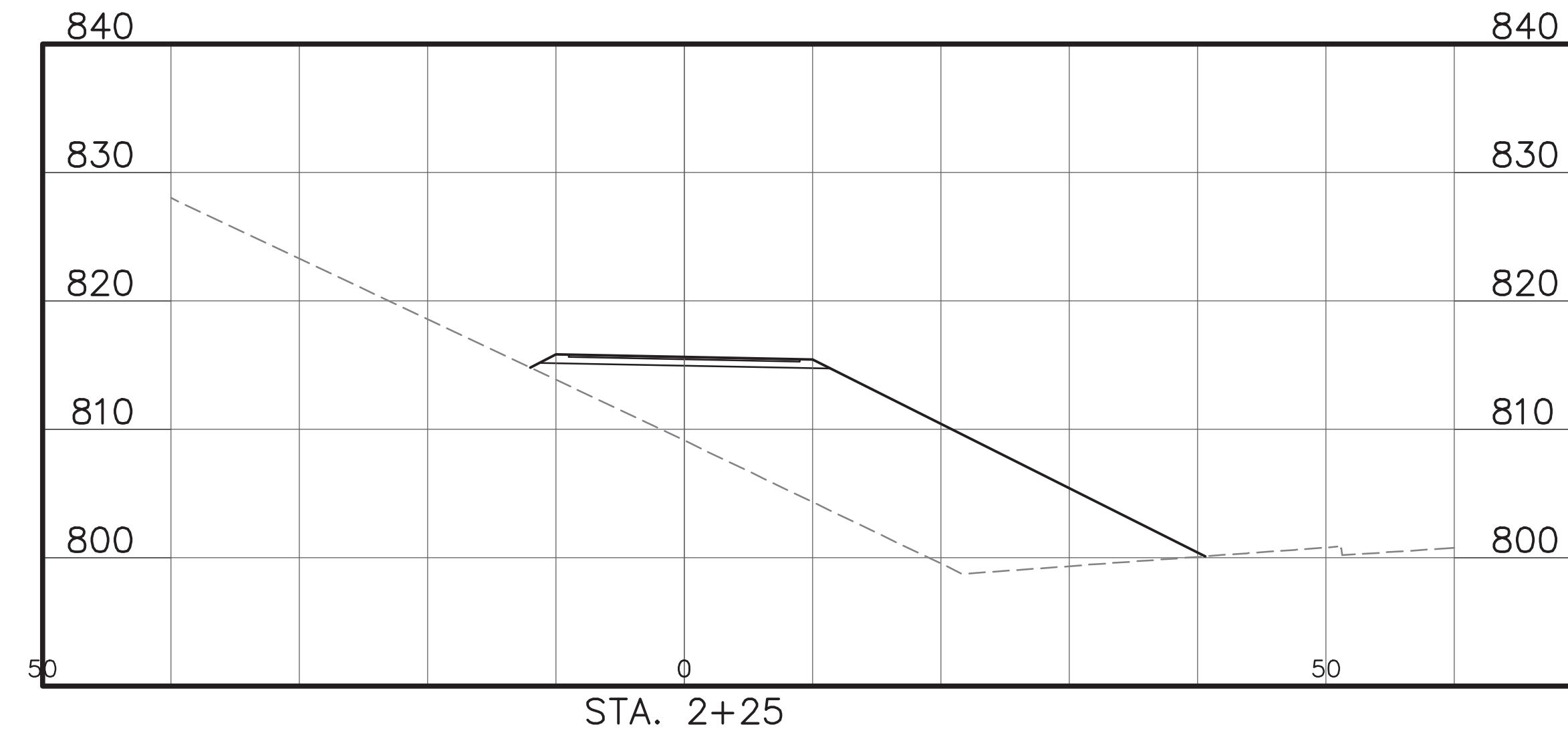
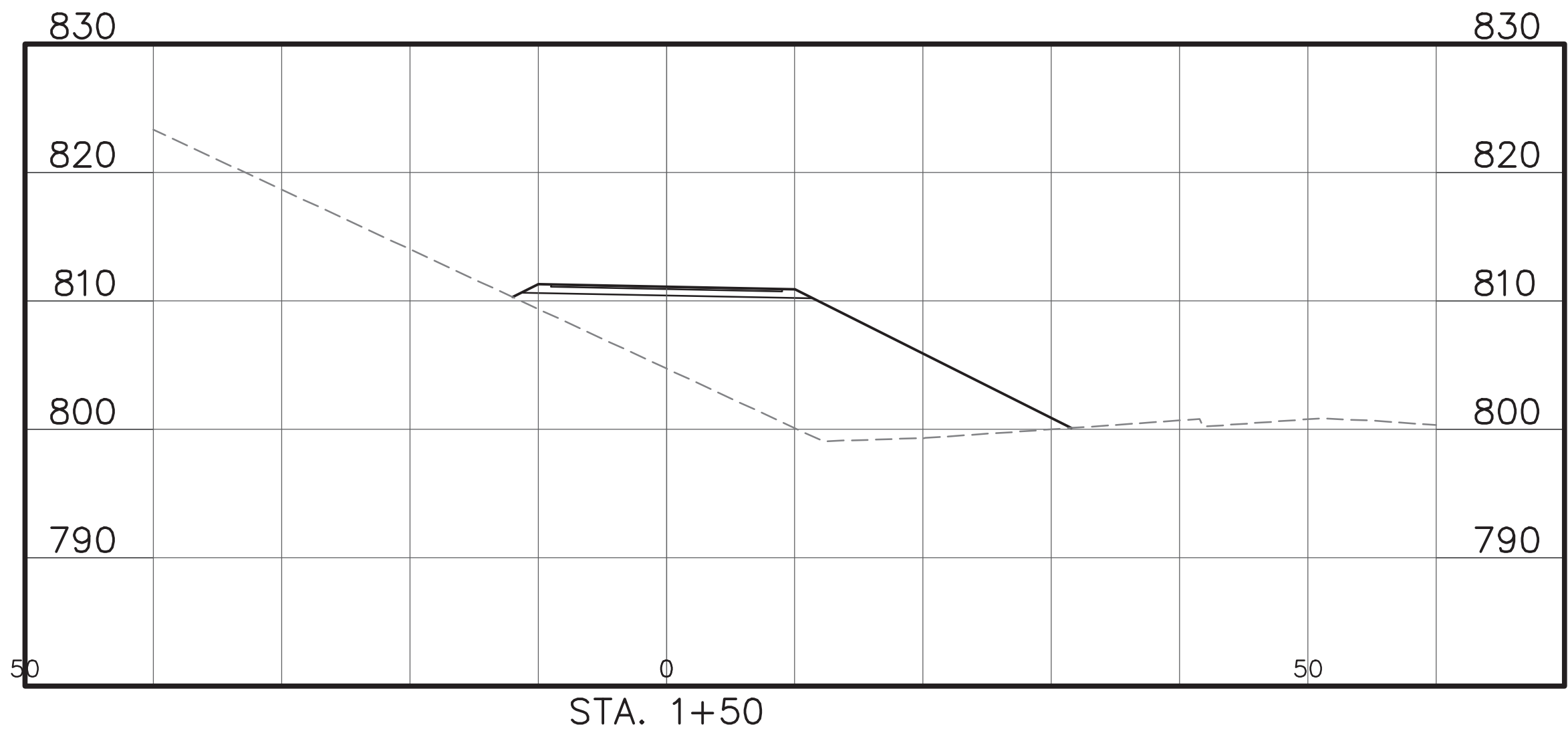
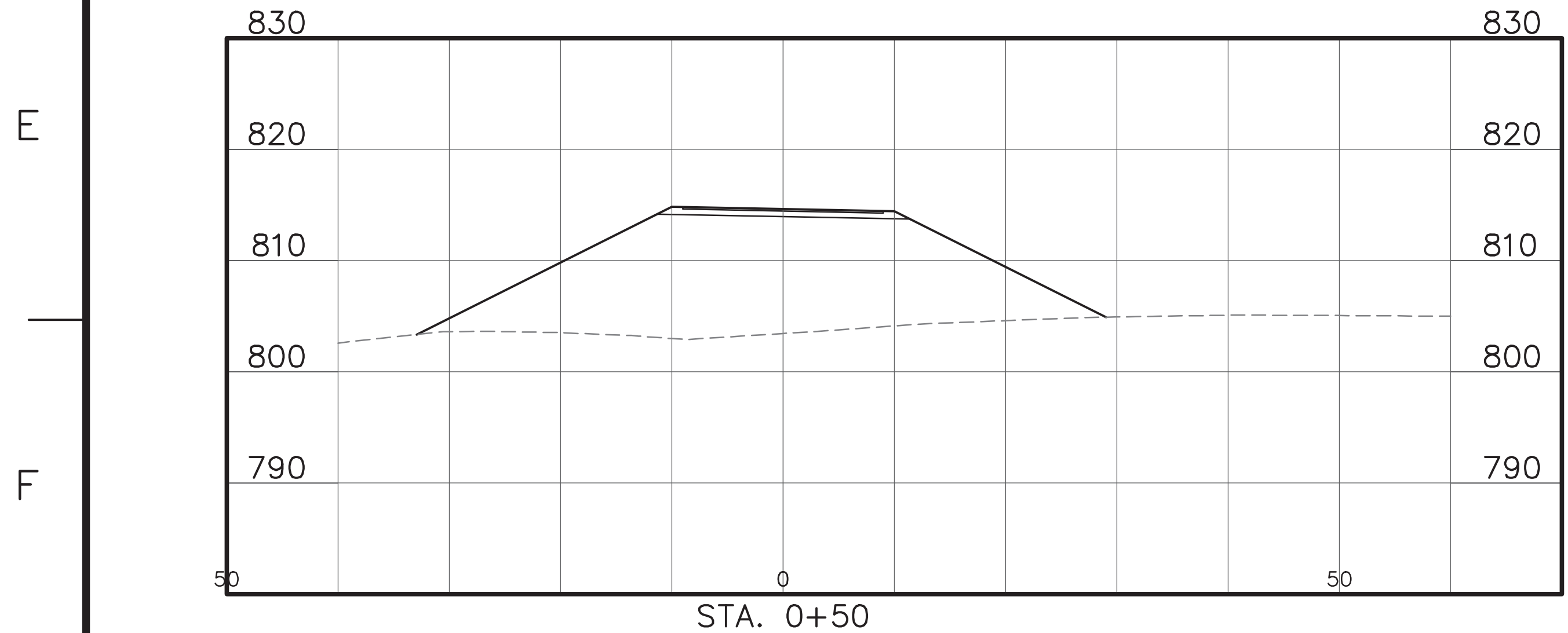
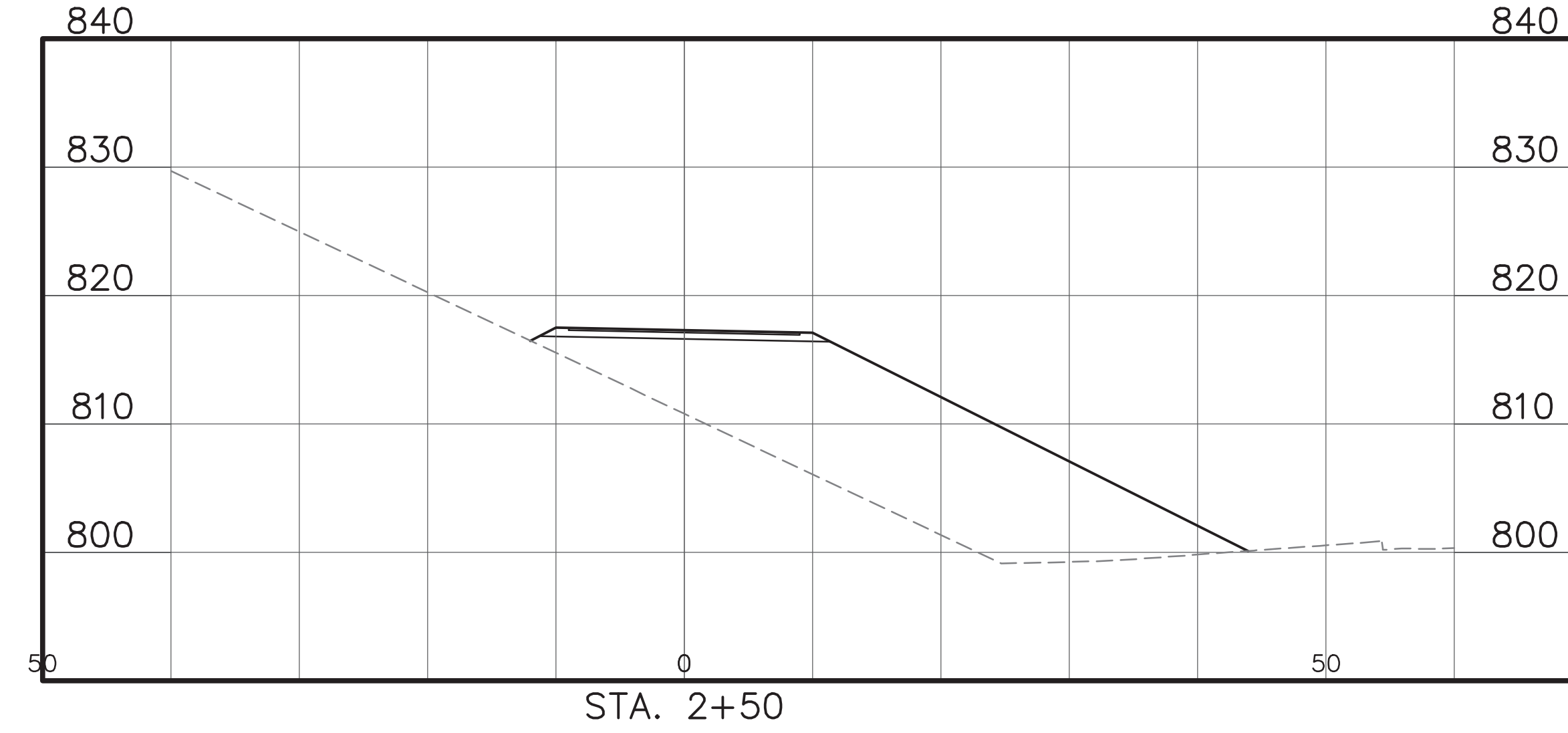
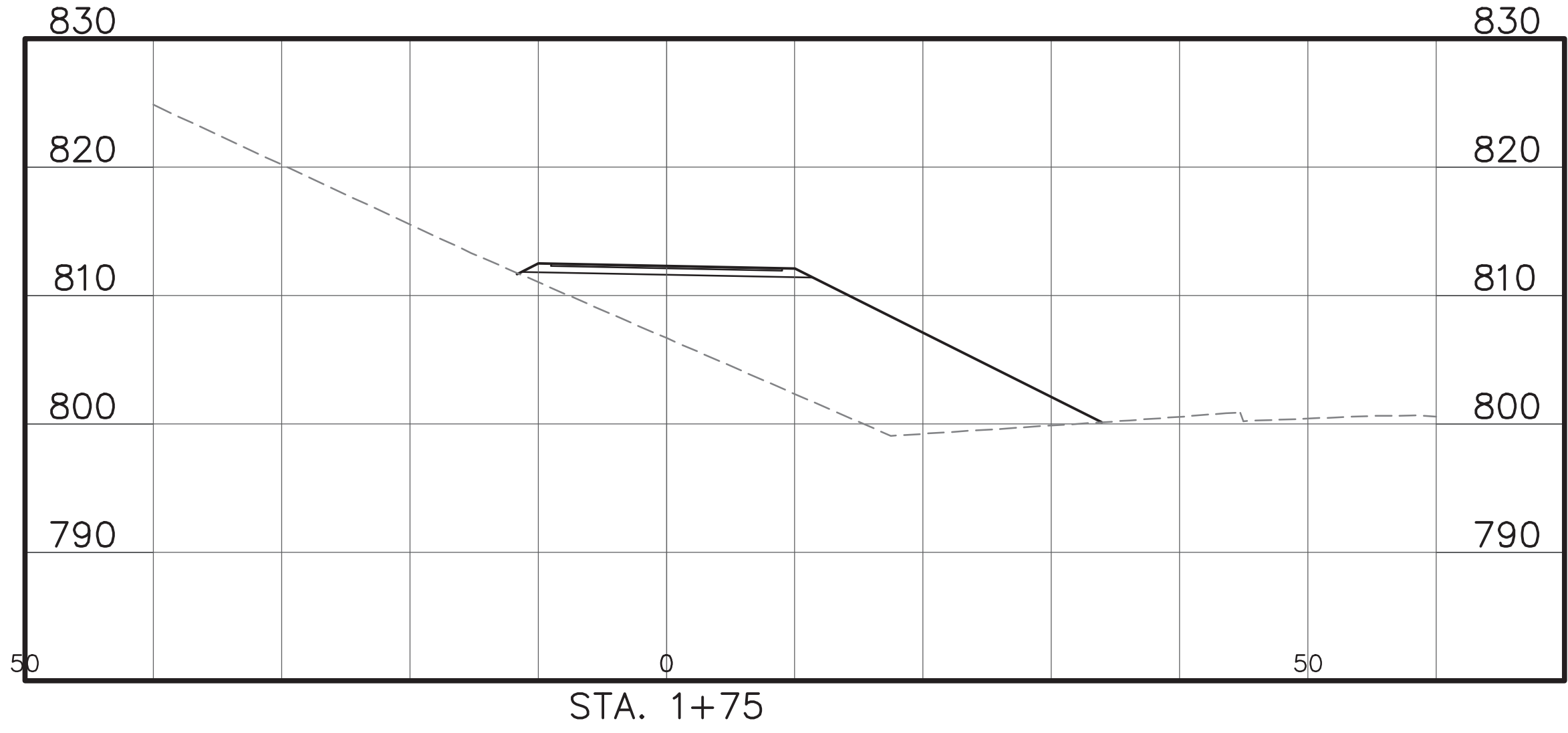
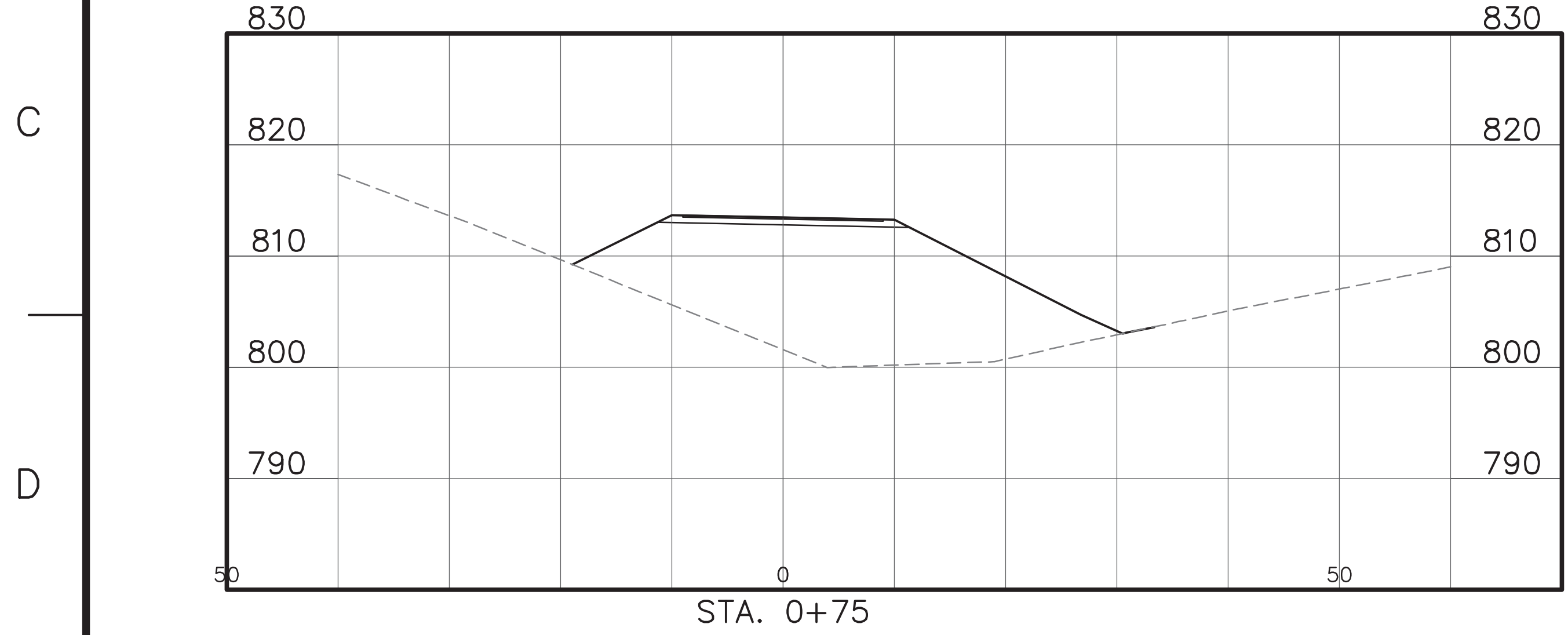
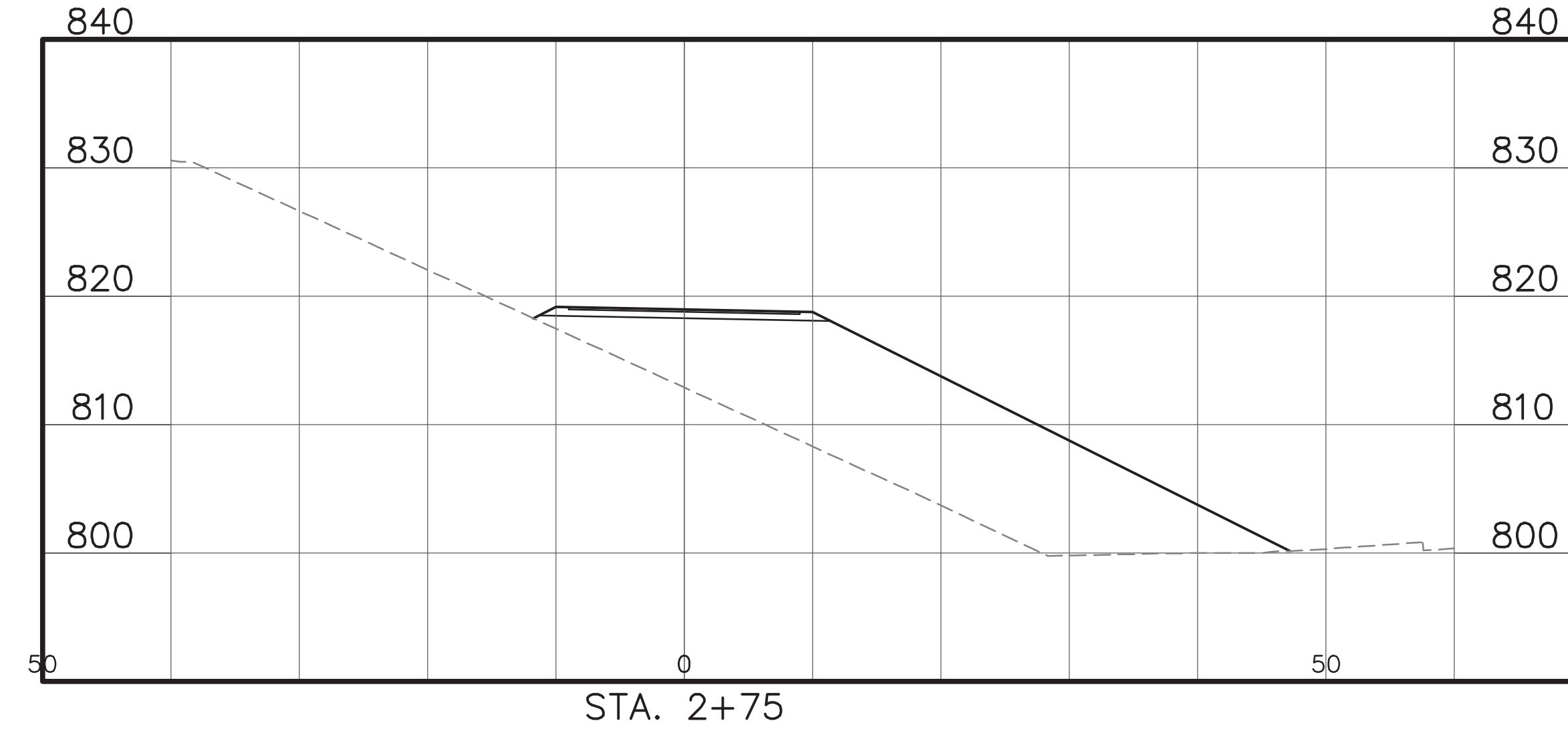
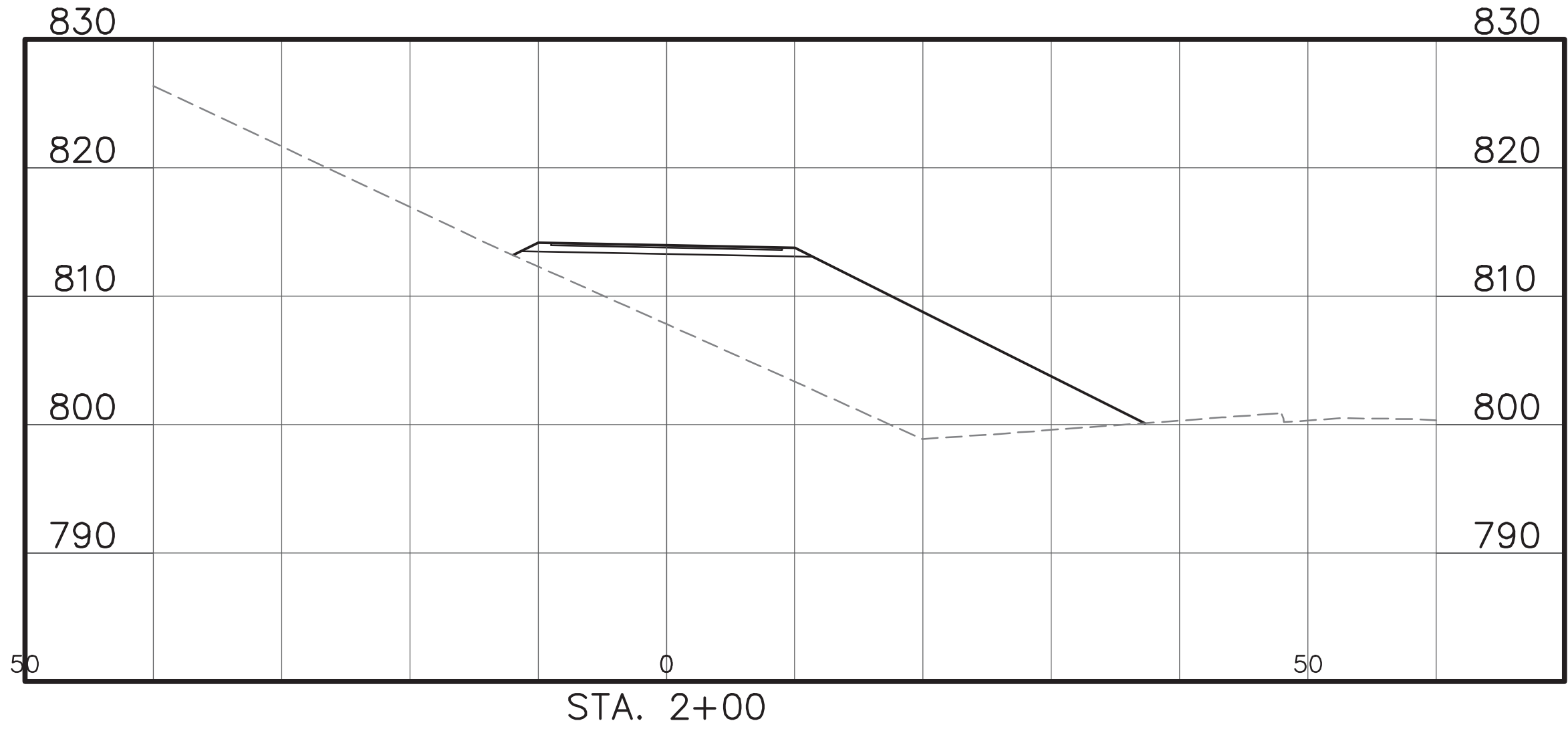
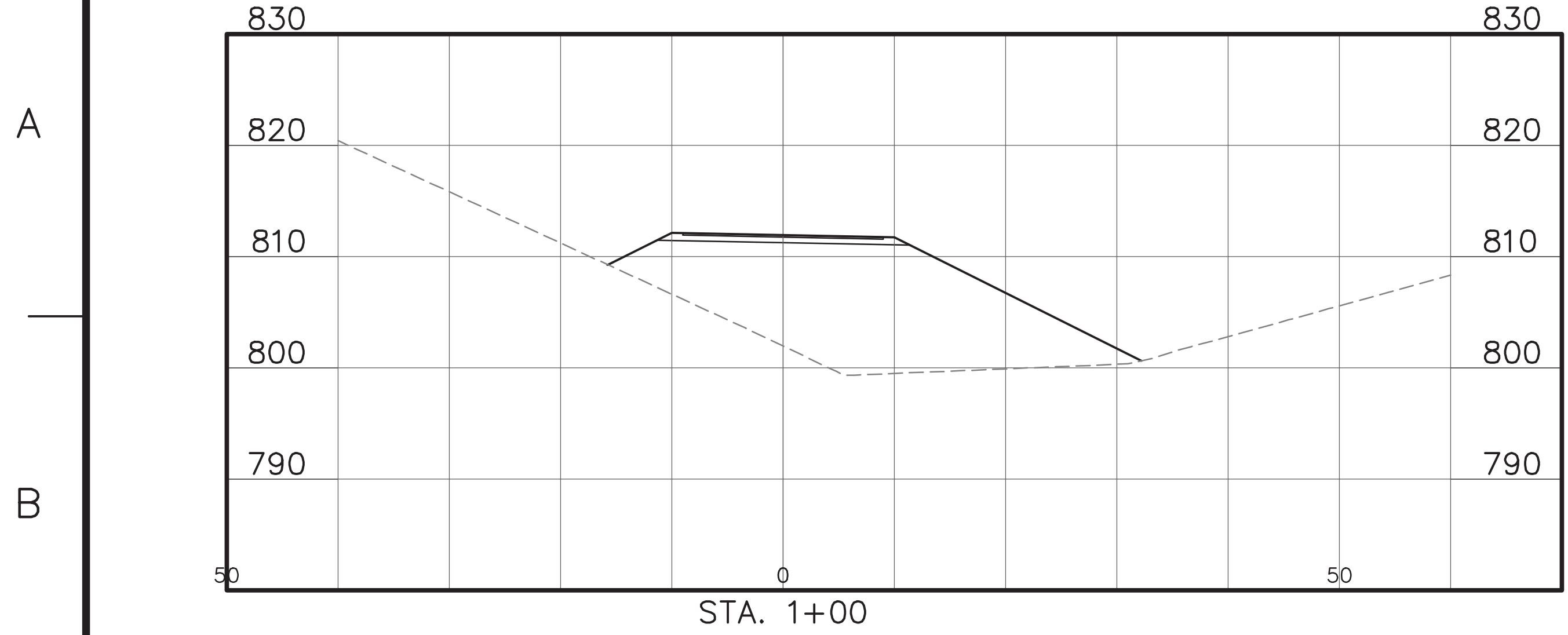
SOUTH EMBANKMENT - SR 73/US 321
 PMF MODIFICATIONS
 ACCESS ROAD
 PLAN AND PROFILE

DESIGNED BY:	DRWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.S. MARSHALL	J.A. MCKENNEY	S.F. FIELD	S.F. FIELD	N/A	N/A	P.V. K15ER

FORT LOUDOUN HYDRO PROJECT
 TENNESSEE VALLEY AUTHORITY
 FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2010	DATE	10 C	23W232-208	R 0
STANTEC		0	PLOT FACTOR: 1	
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DCA Preparation:	NONE	Sheet:	Category:	S	DCA no: DCA-FLH-116500868-0013
Ant. Dep. No.:	23W232-208	Discipline:	CIVIL	Units:	0
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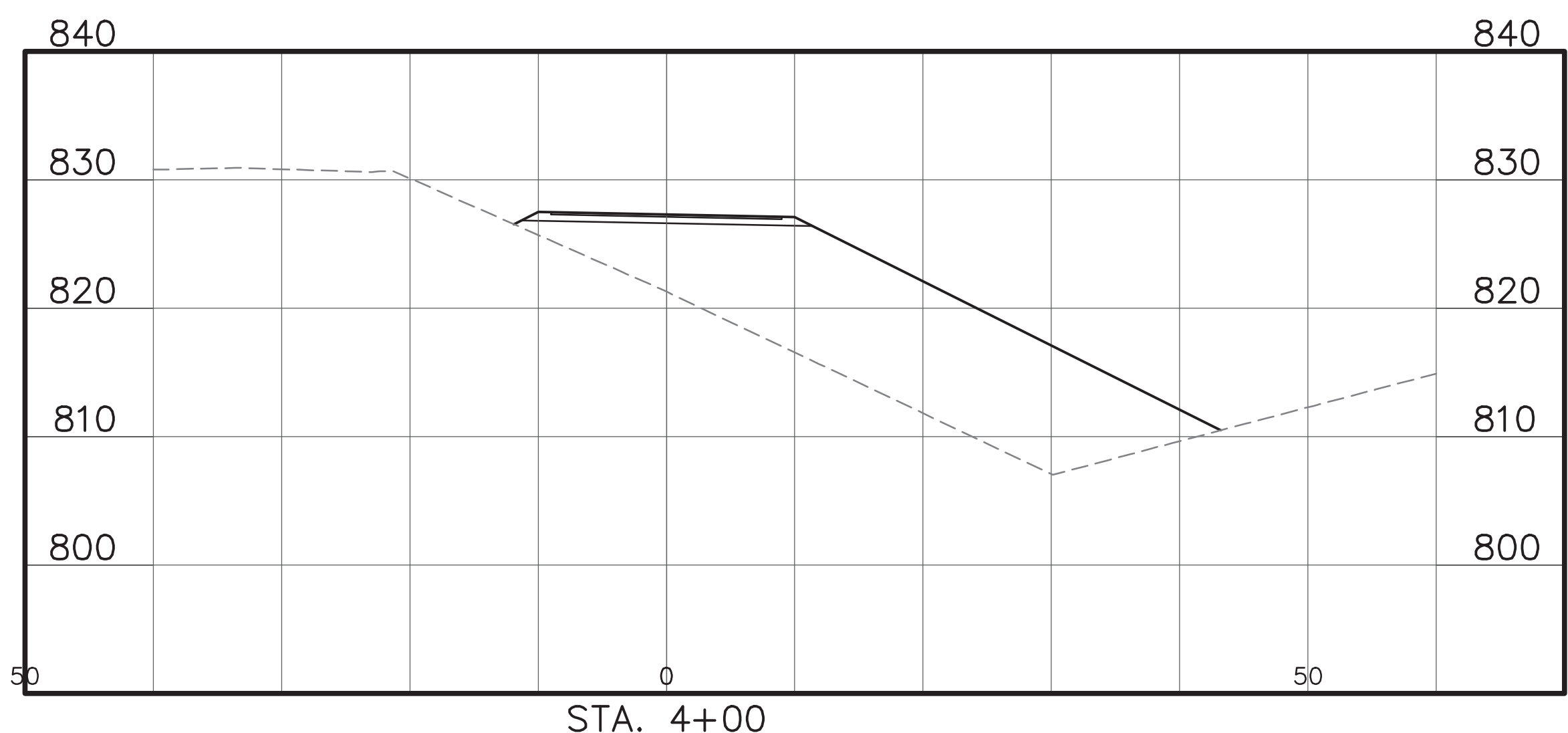
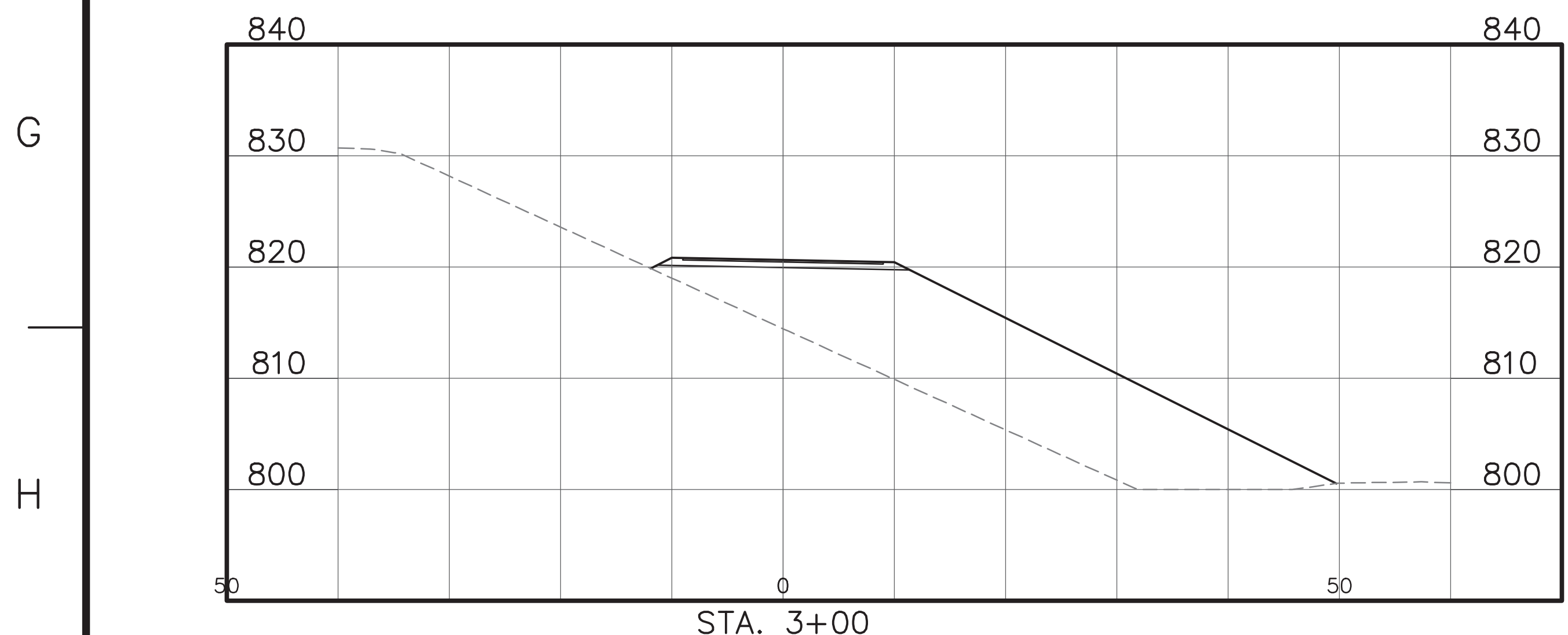
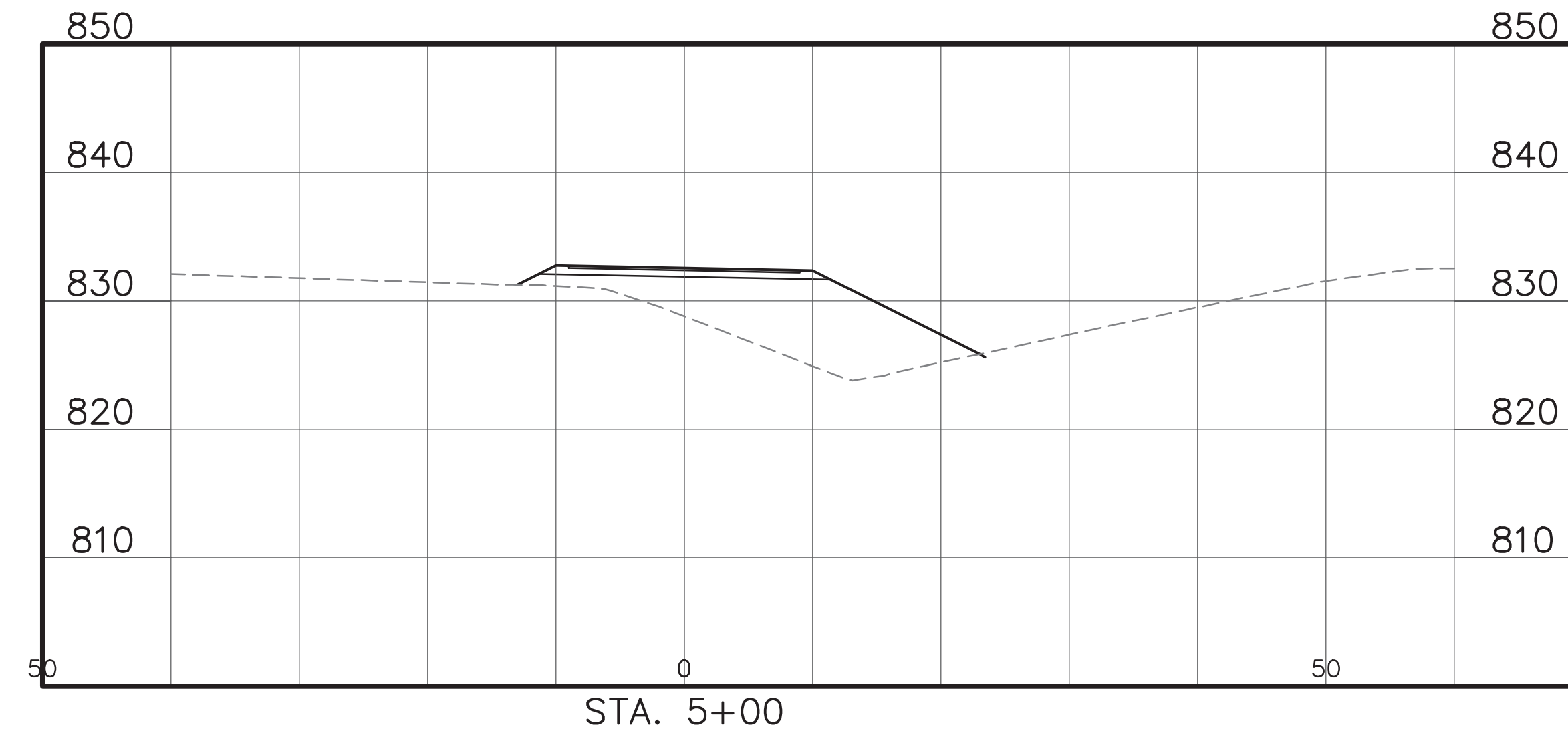
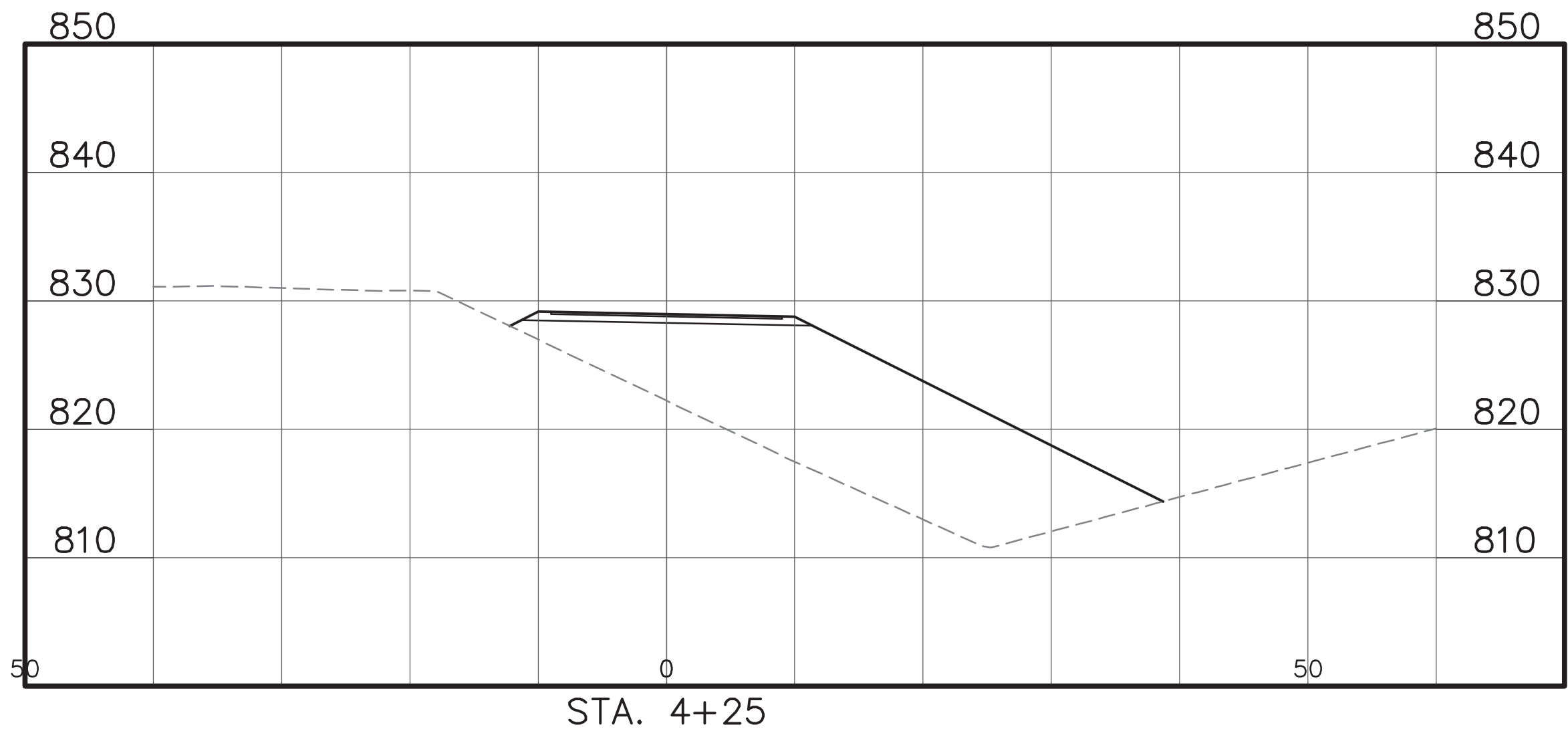
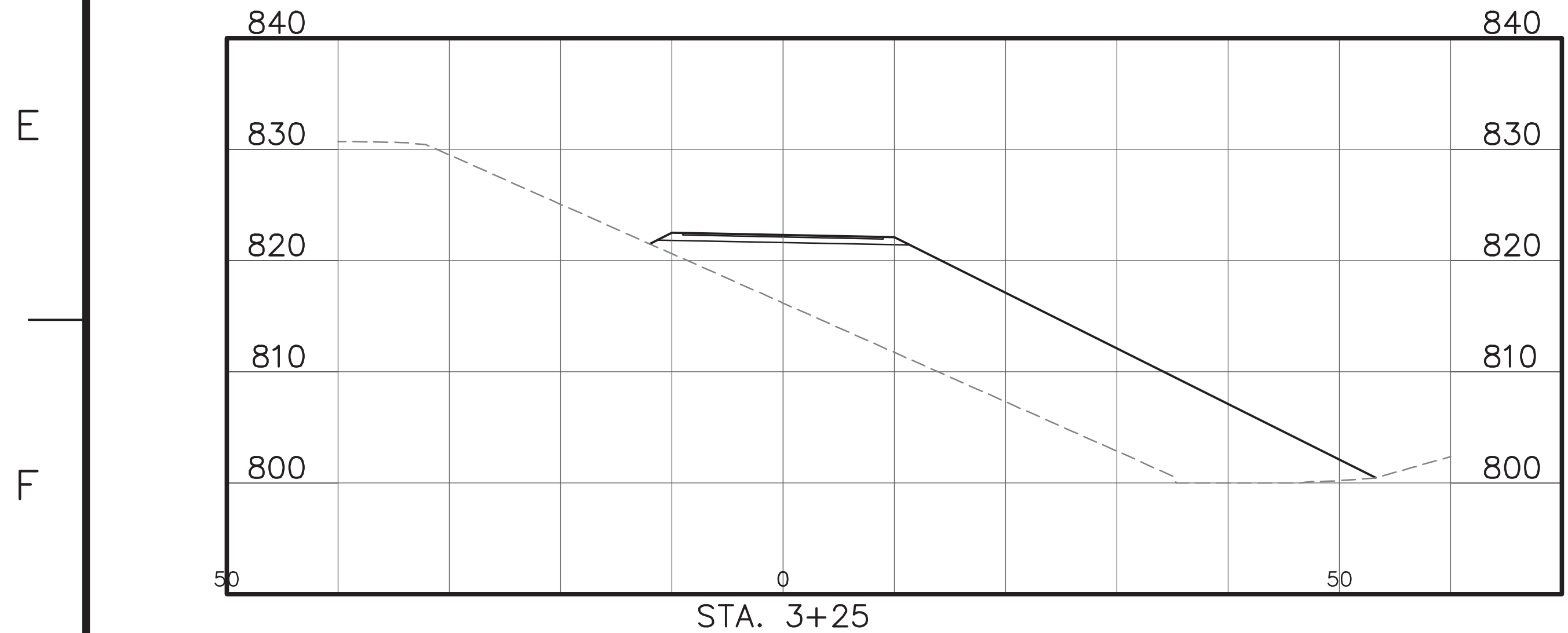
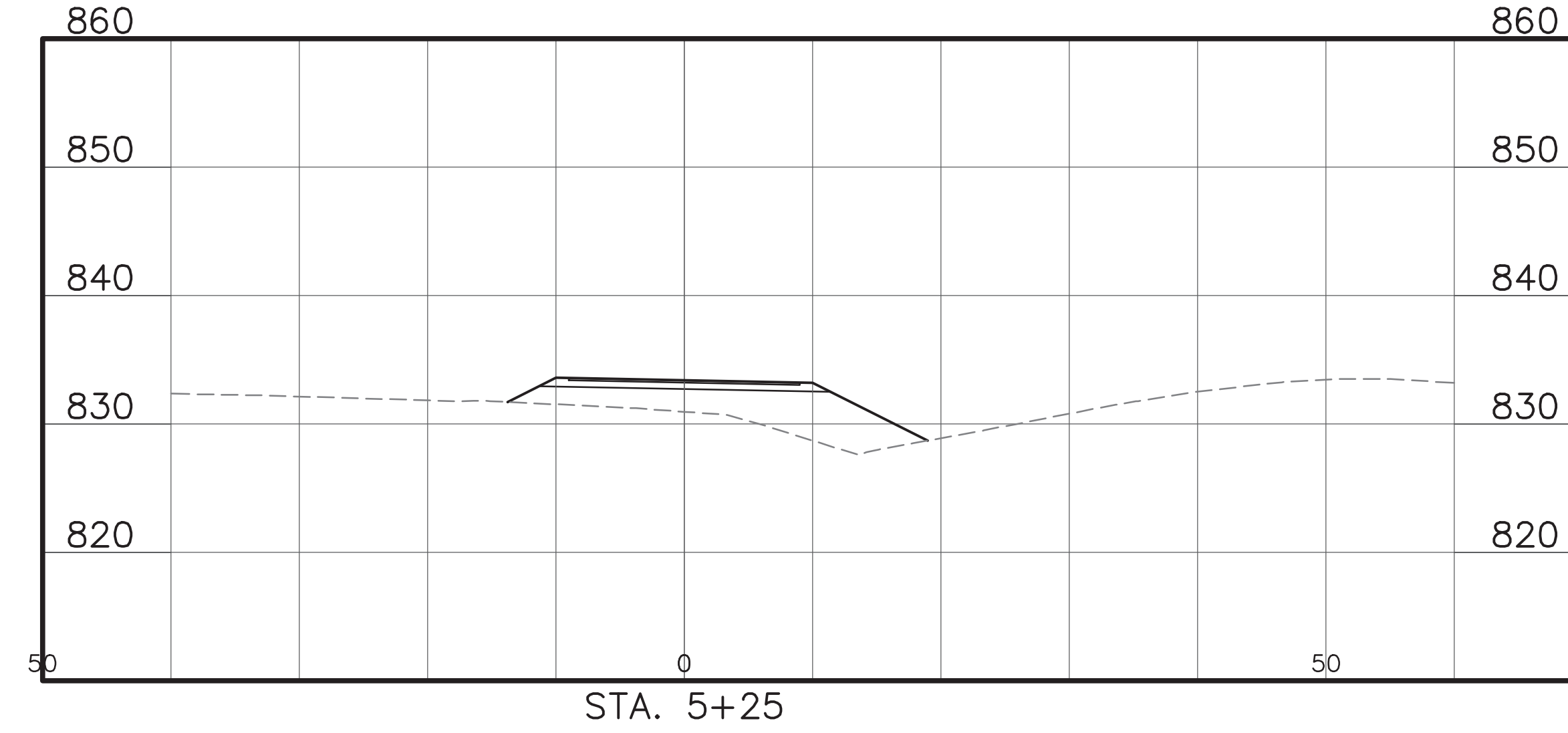
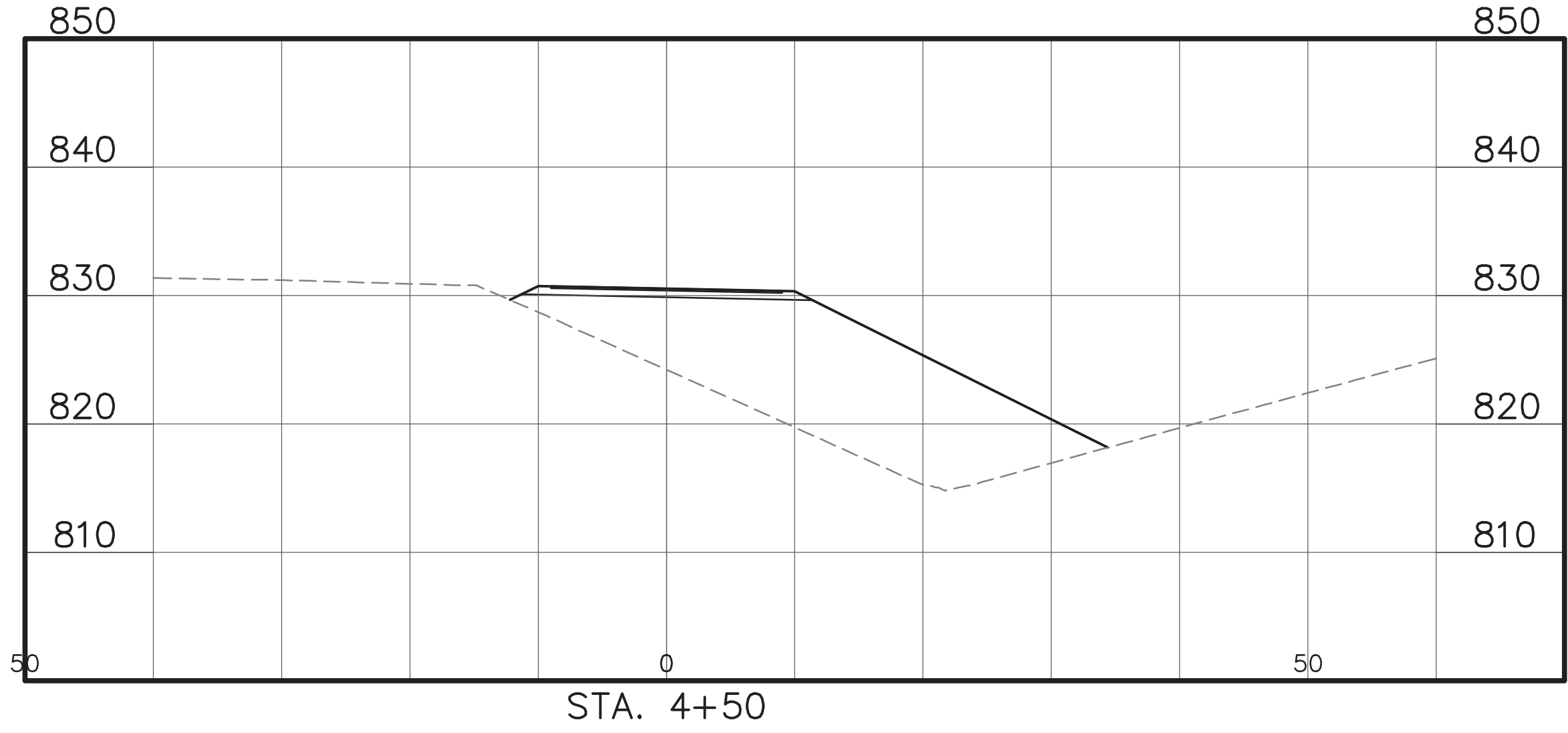
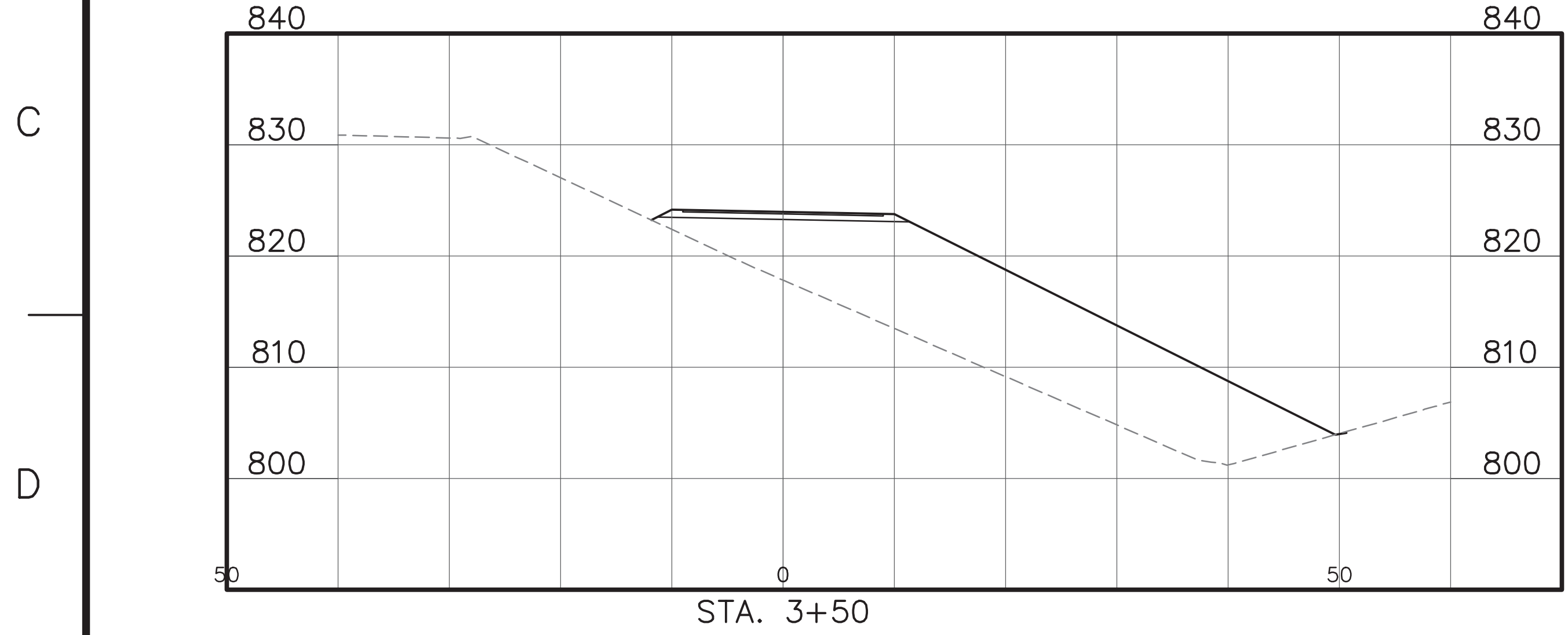
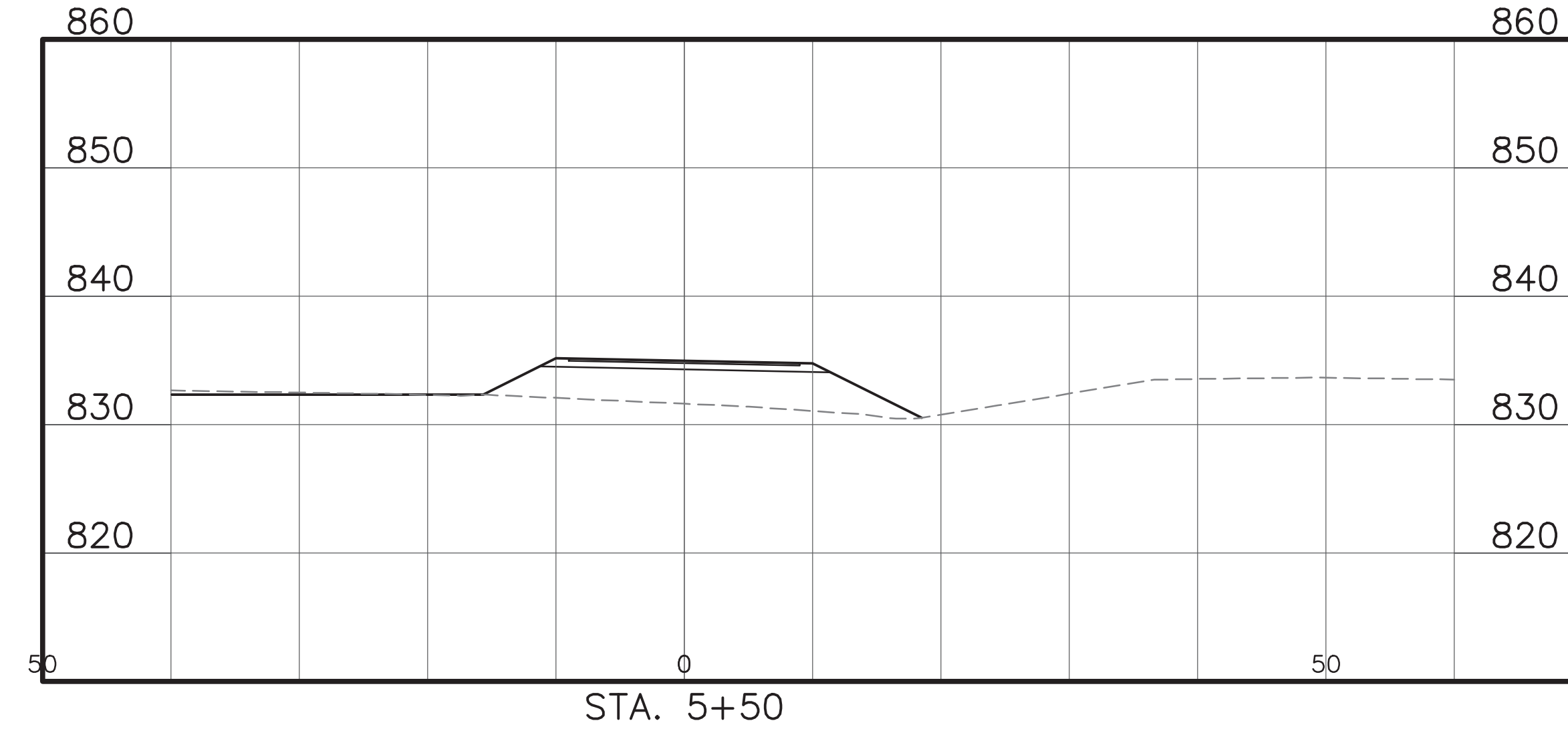
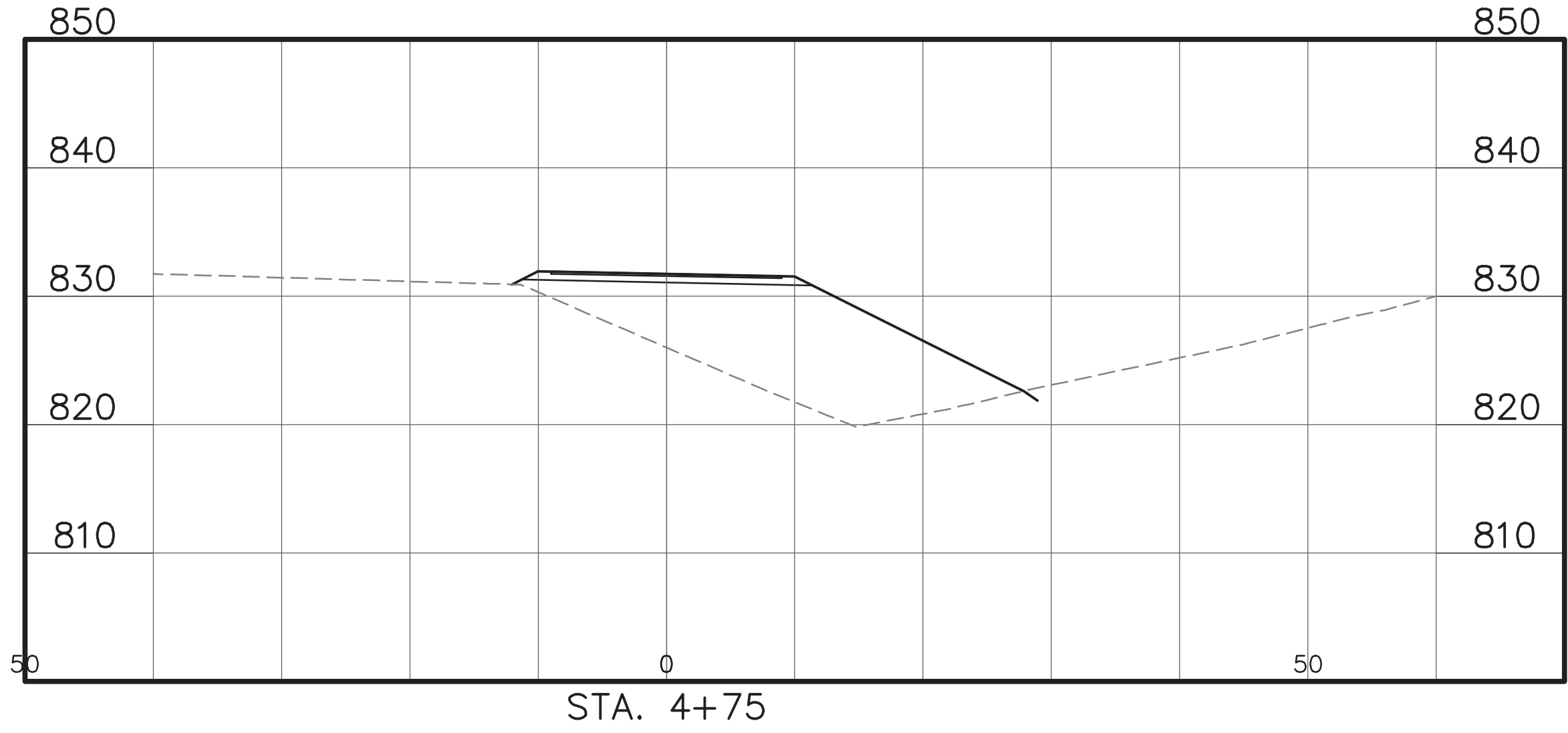
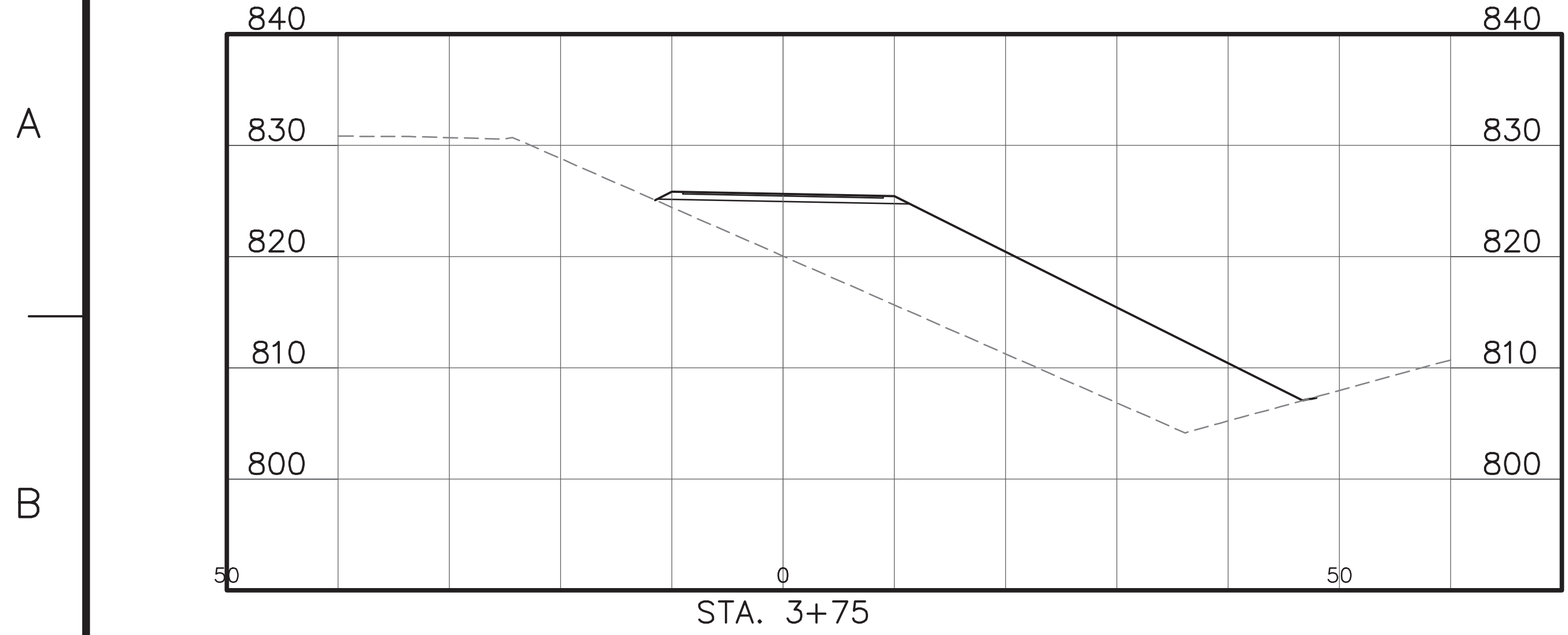
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.S. MARSHALL	J.A. MCKENNEY	S.F. FIELD	S.F. FIELD	N/A	N/A	P.V. KISER
FORT LOUDOUN HYDRO PROJECT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING						
AUTOCAD R 2010	DATE	10	C	23W232-209		R 0

STANTEC	0
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PLOT FACTOR: 1
W_TVA
C.A.D. DRAWING
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Ant. Dep. No.:	23W232-209	Discipline	CIVIL	Units	0

PLOT DATE: 09/11/2015 USER: SEPANHARA, PRANATHI (BILLY) PROJECT: 23W232-209-00-3100132-01-0000



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DRAWINGS AND SUPPORTING
DESIGN CALCULATIONS NUMBER.

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.S. MARSHALL	J.A. MCKENNEY	S.F. FIELD	S.F. FIELD	N/A	N/A	P.V. KISER
FORT LOUDOUN HYDRO PROJECT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING						
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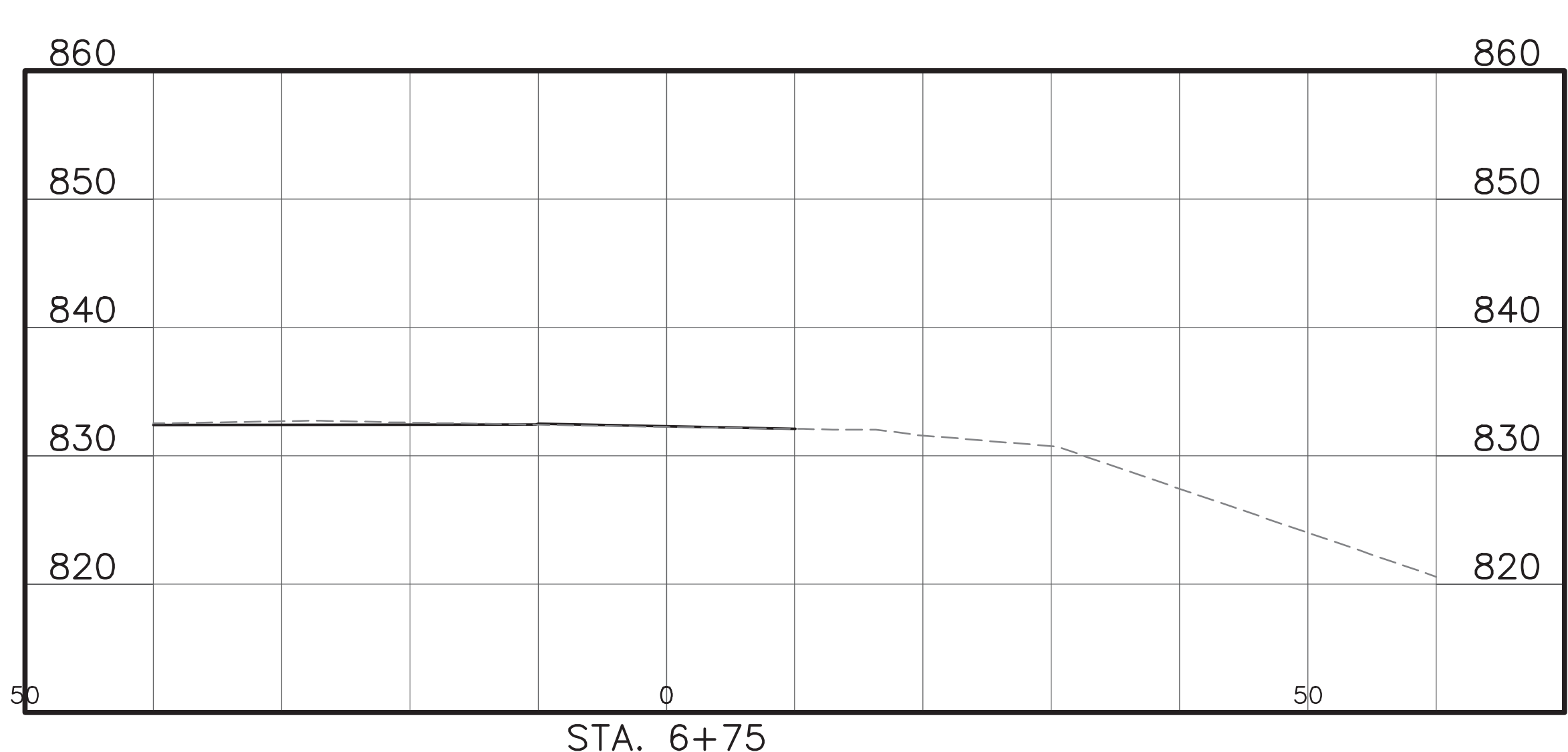
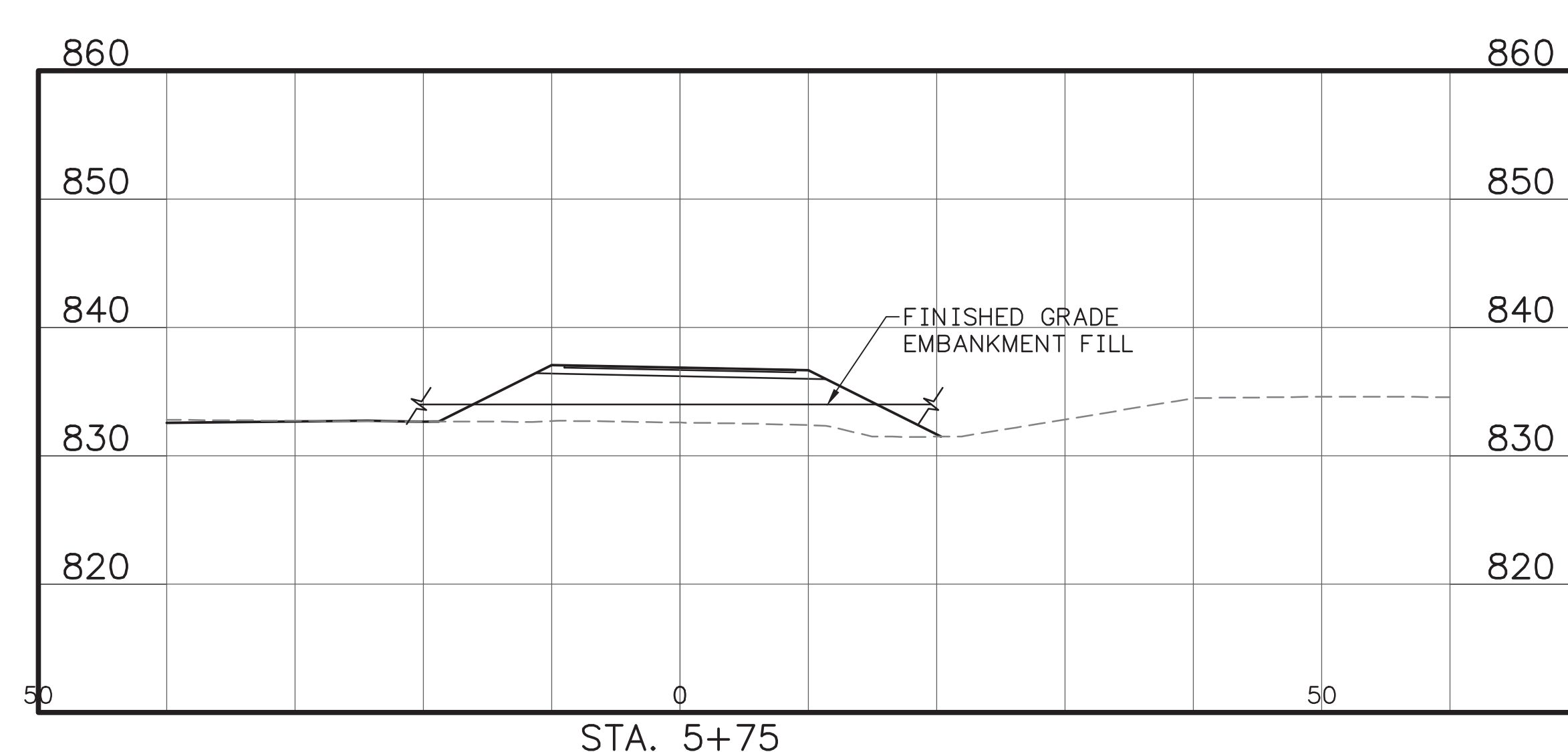
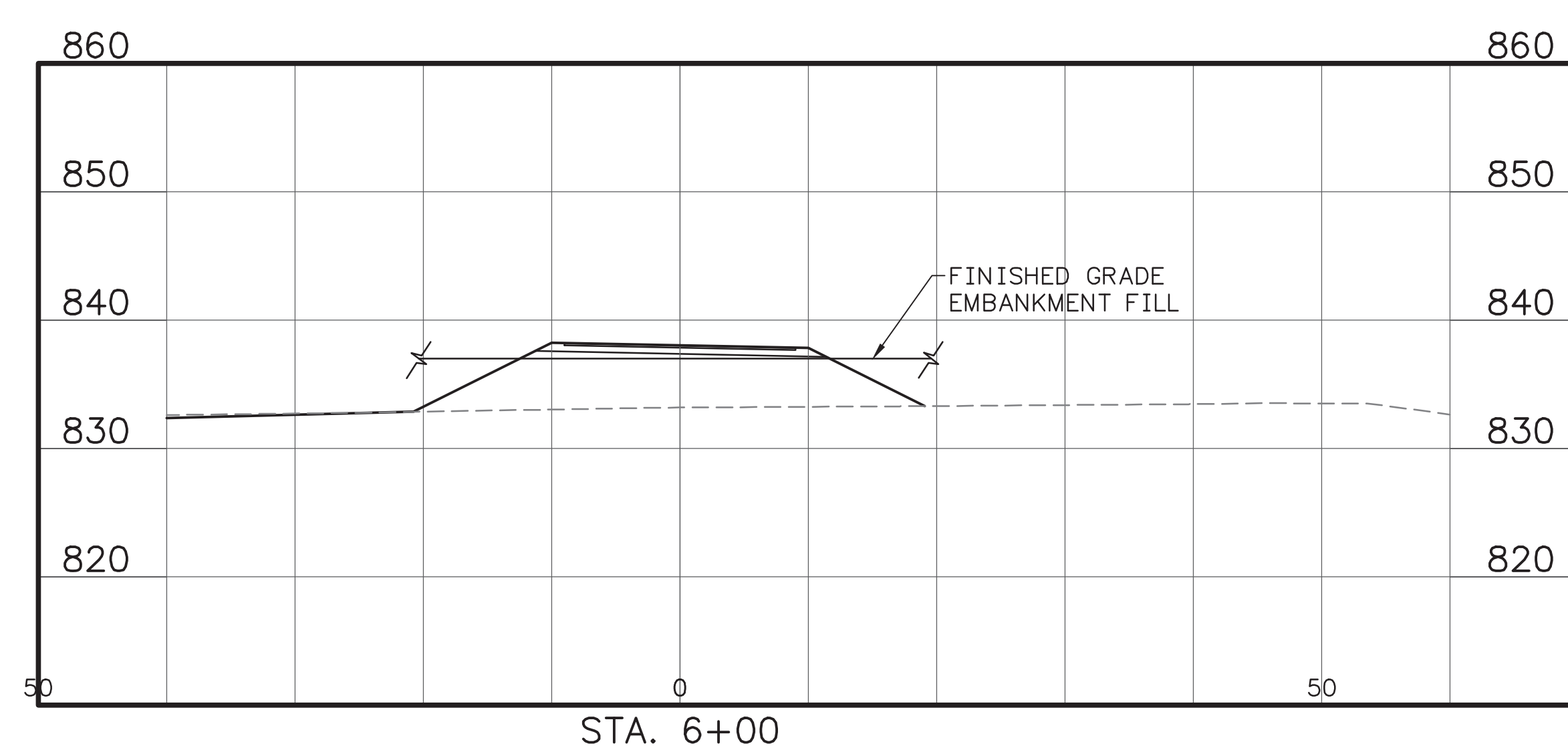
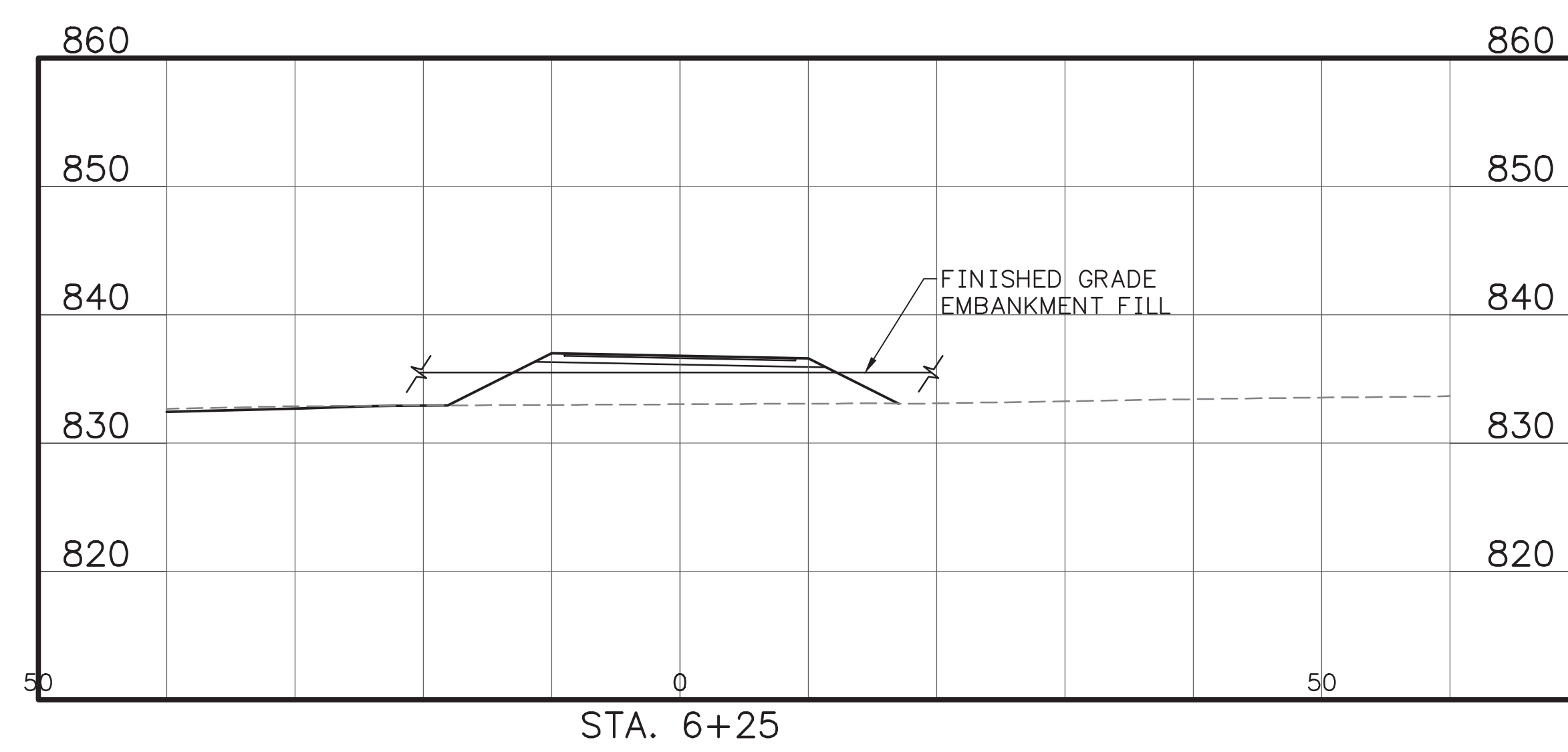
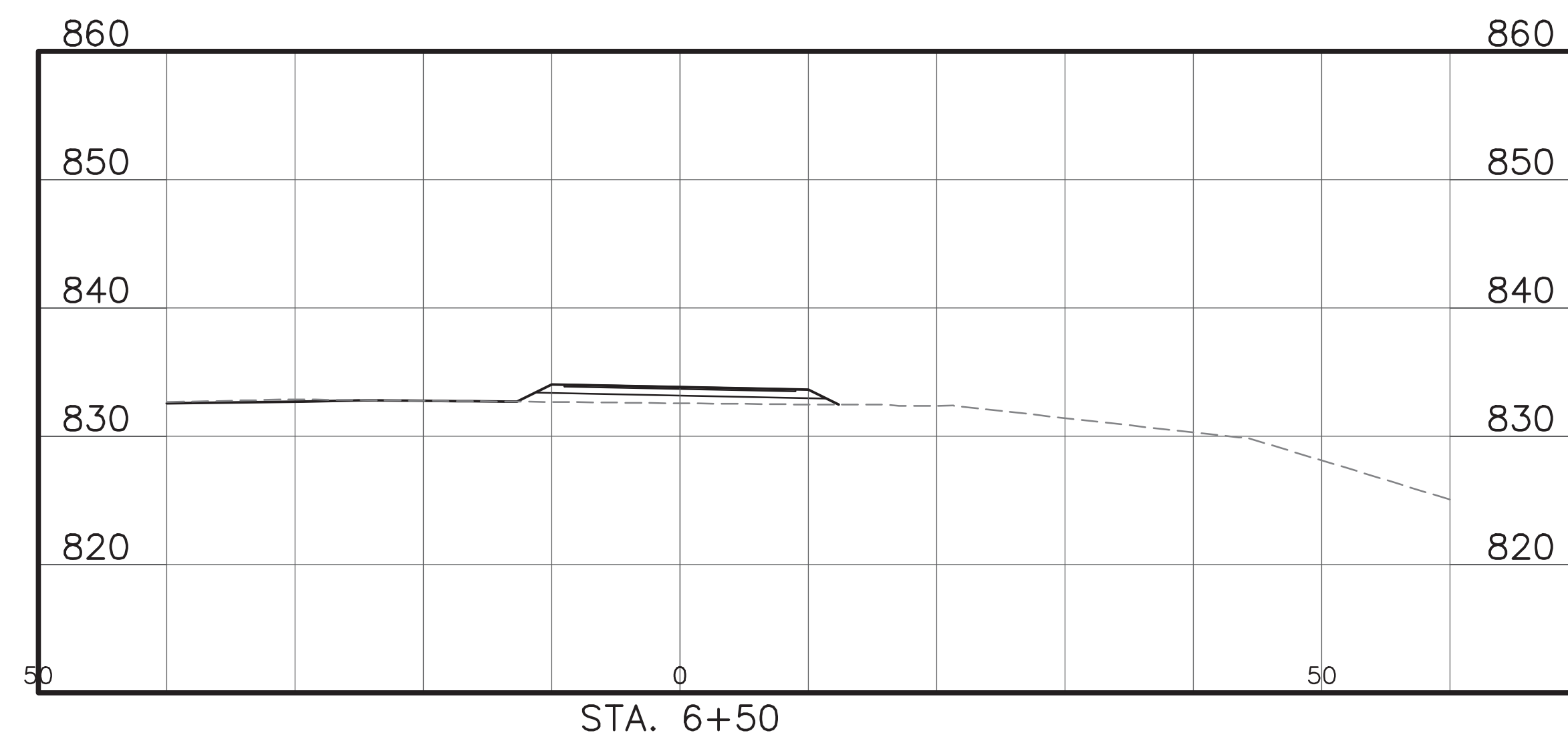
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DO NOT ALTER MANUALLY

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PLOT DATE: 09/11/2015 USER: SEPANHAR, PRAVATH (BILLY)
I:\Projects\2015\23W232-210\Drawings\23W232-210-0015.dwg

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
T.S. MARSHALL	J.A. MCKENNEY	S.F. FIELD	S.F. FIELD	N/A	N/A	P.V. KISER
FORT LOUDOUN HYDRO PROJECT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING						
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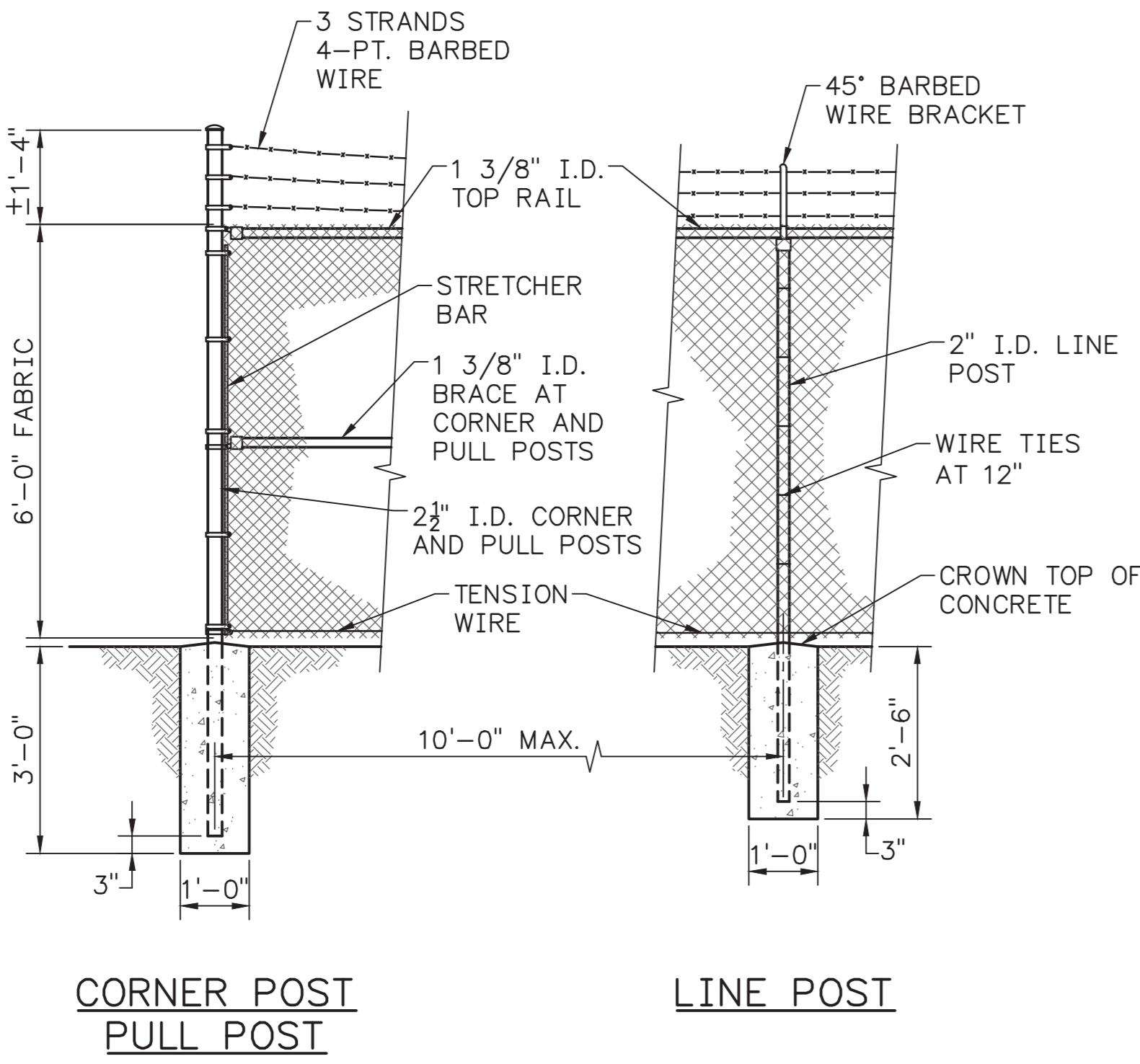
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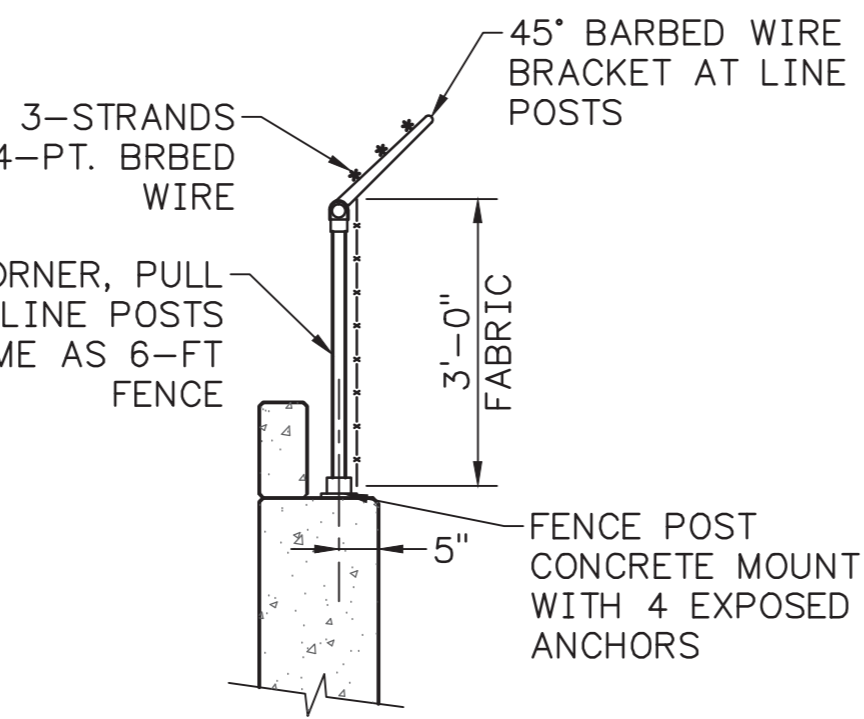
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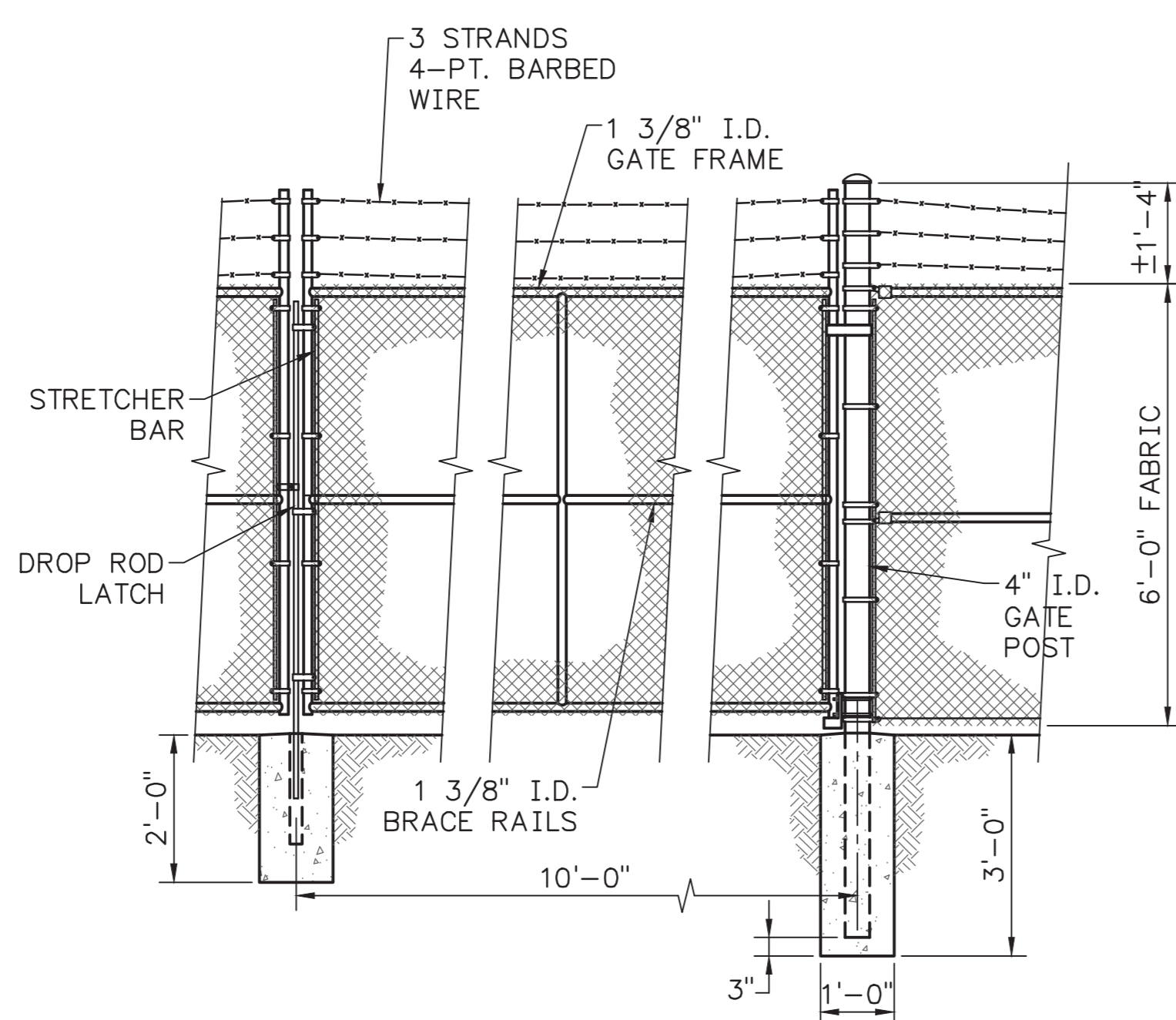


13 DETAIL - FENCE
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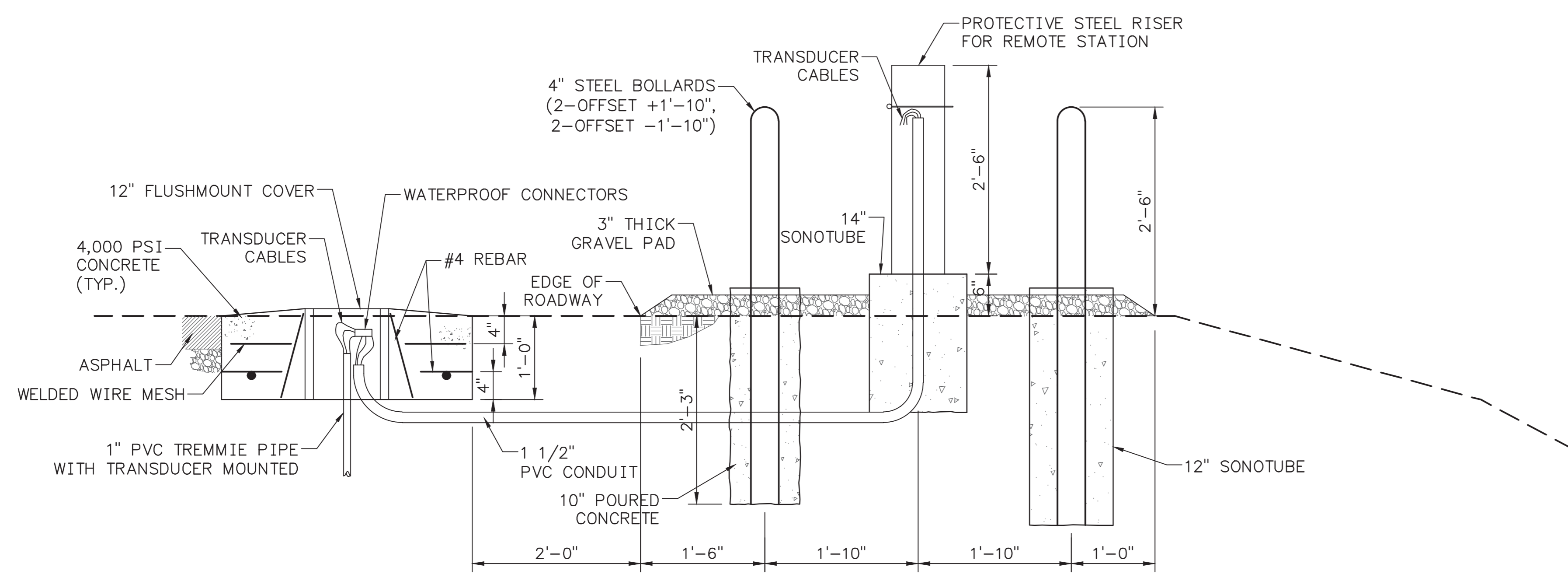


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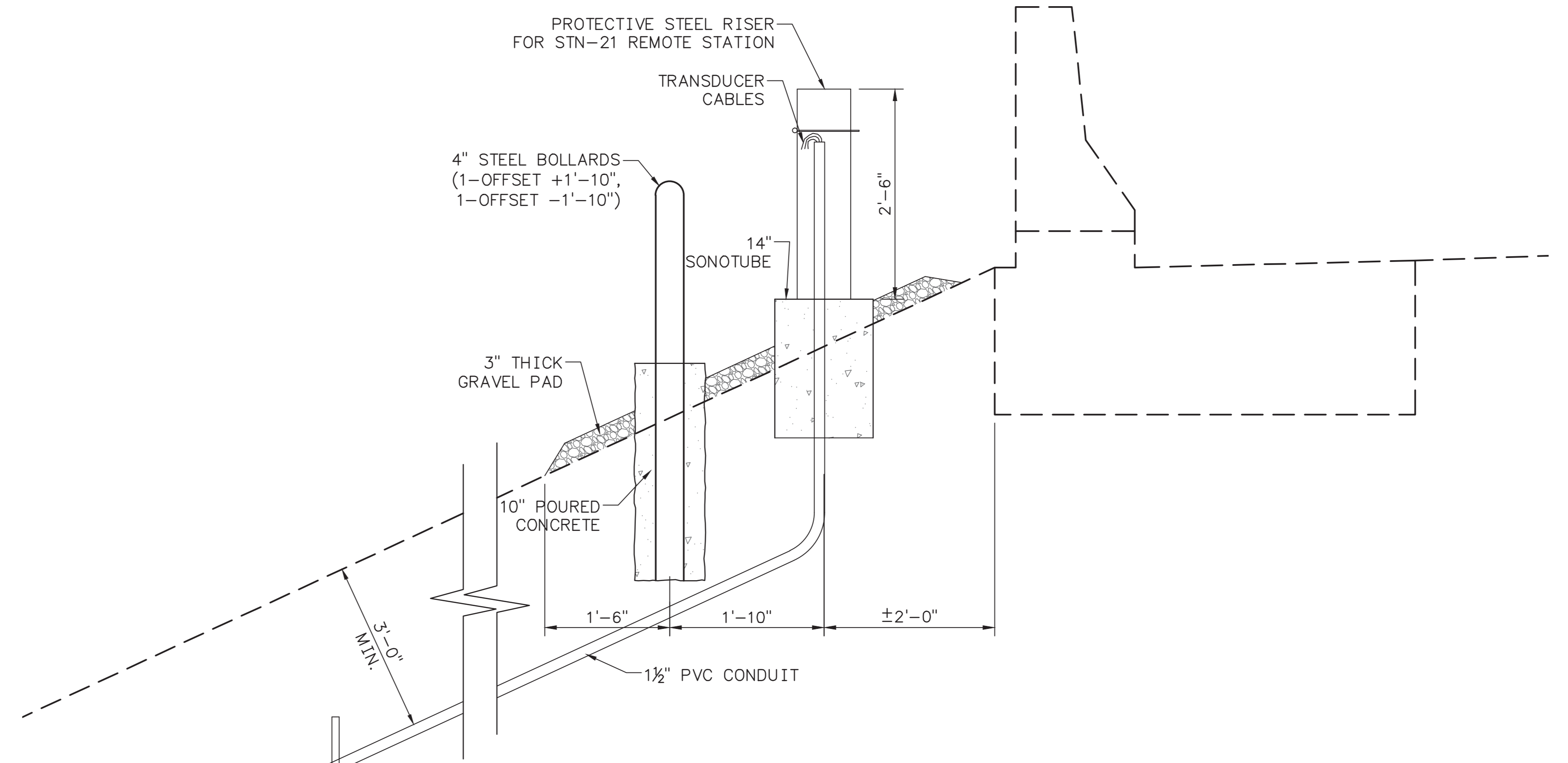
NOTE:
PULL POSTS EQUALLY SPACED (200' MAX.) AND AT ALL SHARP BREAKS IN TERRAIN.



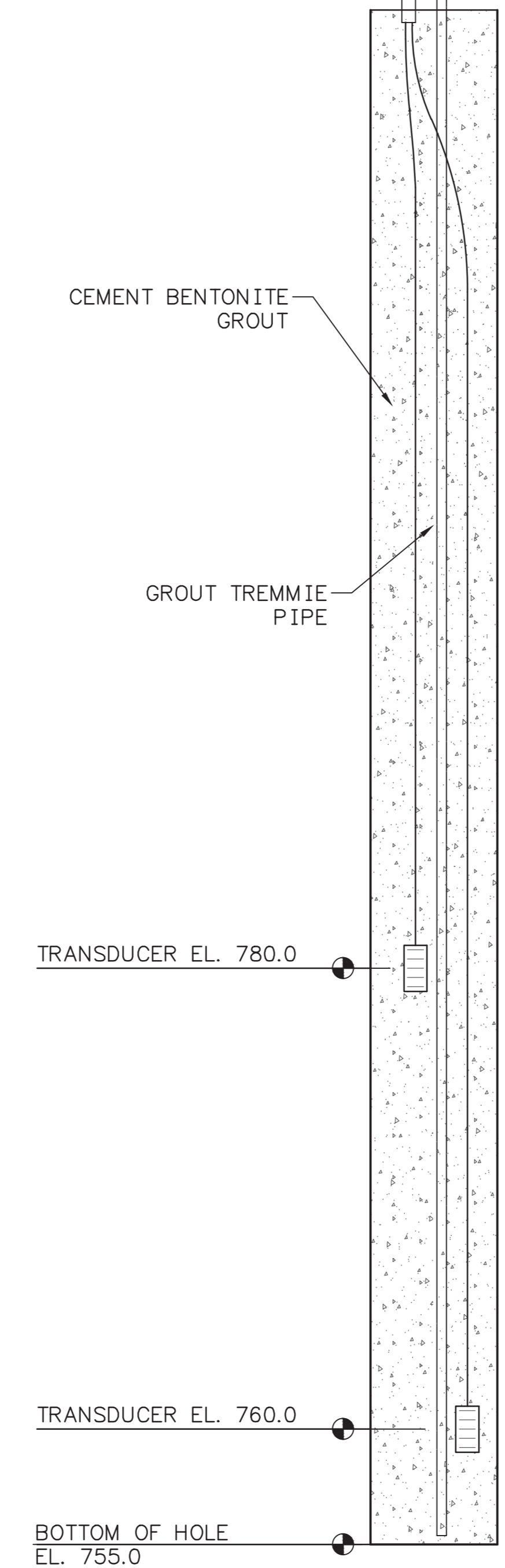
14 DETAIL - GATE
23W232-402 SCALE: 1/2"=1'-0"



15 DETAIL - VIBRATING PZ ELEVATION LAYOUT
23W232-402 SCALE: 1"=1'-0"



16 DETAIL - VIBRATING WIRE PZ INSTALLATION
23W232-402 NOT TO SCALE



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DESIGNED BY:	T.S. MARSHALL	DRAWN BY:	P. SILPACHARN	CHECKED BY:	S.F. FIELD	SUPERVISED BY:	S.F. FIELD	REVIEWED BY:	N/A	APPROVED BY:	N/A	ISSUED BY:	P.V. KISER
SOUTH EMBANKMENT - SR 73/US 321 PMF MODIFICATIONS TYPICAL SECTIONS AND DETAILS FORT LOUDOUN HYDRO PROJECT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING													
AUTOCAD R 2010	DATE	09/11/15	10	C	23W232-402	R 0							

STANTEC	0	PLOT FACTOR:1	C.A.D. DRAWING
TASK COMPLETED BY:	REV NO.	W_TVA	DO NOT ALTER MANUALLY

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Rev.	Prepared	Date	Checked	Date	Change Reference & Rev.
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02	23W232-402				
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Discipline: CIVIL Unit: 0 DCA BLOCK REV. 1					

PLOT DATE: 09/10/2015 USER: SILPACHARN, PRAVITH (01/17) FILE: \\PVA\ACT\15120628\ENR\DRWING\DRWING\23W232-402-402.DWG



TVA Standard Programs and Processes

Groundwater - Solid Waste Environmental Compliance and Operations

TVA-SPP-05.052
Rev. 0000
Page 1 of 11

Validation Date 03-31-2017


Review Frequency 4 years

Validated By Abigail Bowen

Effective Date 03/31/17

Responsible Executive Organization: Operations

Approved by:


M. Susan Smelley, Director, Environmental Compliance and Operations

03-30-2017

Date

TVA Standard Programs and Processes	Groundwater - Solid Waste Environmental Compliance and Operations	TVA-SPP-05.052 Rev. 0000 Page 2 of 11
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Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0000	03-31-2017	All	Initial Issuance.

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TVA Standard Programs and Processes	Groundwater - Solid Waste Environmental Compliance and Operations	TVA-SPP-05.052 Rev. 0000 Page 4 of 11
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1.0 PURPOSE

This procedure describes how TVA organizations manage groundwater monitoring and reporting programs to ensure compliance with applicable Federal, State, and local requirements. Compliance with this process is not a substitute for knowing and complying with all applicable laws, permits and regulations.[C1, C2]

2.0 SCOPE

This procedure covers employees and contractors involved with groundwater monitoring and reporting programs, including remediation, at TVA sites. It applies to all personnel involved in the following related to this program:

- Groundwater well network design, installation, maintenance, and closure
- Monitoring plans, and performance of required monitoring
- Exceedance reporting to state regulatory agencies
- Preparation, review and submittal of reports

3.0 PROCESS

3.1 Roles and Responsibilities

3.1.1 Environmental Compliance and Operations (EC&O)

The director has signature responsibility for this document. Their professional environmental staff, who provide permitting and compliance, fulfill the following roles and responsibilities:

- A. Provide governance, oversight and support of activities associated with TVA's administrative management of groundwater monitoring outlined in this procedure including monitoring plans, well network design, well installation, maintenance, closure, and all other regulatory reporting.
- B. Provide governance, oversight, execution, and support of correspondence with regulators and regulatory agencies, serving as primary liaison in negotiations with regulatory agencies for TVA's compliance and permitting needs.
- C. Provide oversight and support for handling of environmental documentation and serve as support to the operational organizations in the execution of the requirements.
- D. Provide operations-level oversight to identify and prioritize operational environmental impacts and risks. Support TVA organizations to identify activities that could significantly affect environmental performance. Together with TVA Management ensure proper execution to address risks.

TVA Standard Programs and Processes	Groundwater - Solid Waste Environmental Compliance and Operations	TVA-SPP-05.052 Rev. 0000 Page 5 of 11
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3.1.1 Environmental Compliance and Operations (EC&O) (continued)

- E. Ensure regulatory tasks are incorporated into the work management process.
- F. Provide oversight and support in corrective and preventative actions including: reporting environmental events, investigation of cause, developing of corrective actions, and assignments of actions that ensure continuous improvement.

3.1.2 Generation Construction, Projects and Services (GCP&S)

- A. GCP&S is the asset owner of CCR facilities covered by this procedure.
- B. Properly execute operational procedures, processes, and environmental controls (including contract work) to maintain environmental performance. Incorporate communicated changes in environmental permits and regulations into work practices. Adhere to environmental considerations as directed by the procurement organization.
- C. Ensure all groundwater plan documents, reports, well installation, modification, and closure information, and other compliance required documentation are coordinated and planned with EC&O, where appropriate, for timely submittal to state or federal regulators, and meet all regulatory requirements.
- D. Identify environmental risks with EC&O and comply with National Environmental Policy Act (NEPA).
- E. Familiarize themselves with the requirements of the groundwater monitoring plans in effect for the specific TVA site being served.
- F. Properly manage environmental documents and monitoring data.
- G. Properly track and report environmental performance. Report environmental events and significant near misses, participate in cause evaluation and implementation of corrective actions. Share lessons learned and best practices, applying as appropriate.

3.1.3 General Counsel

Provide support to EC&O for compliance issues, as needed.

3.1.4 TVA Management

For purposes of this SPP, TVA Management refers to the leaders in TVA organizations under the scope of this document. These individuals are charged with oversight of the execution roles in many areas. They shall ensure resources are adequate to sustain the following roles and responsibilities in order to maintain environmental compliance:

- A. Ensure that environmental operating criteria is included in operational procedures and processes, including contract work, and ensure execution of these operational controls.
- B. Ensure proper permits are obtained from regulatory agencies, by EC&O, and provide process guidance to ensure permit conditions are met.
- C. Ensure evaluation, identification, and prioritization of environmental risks, including compliance with NEPA.

TVA Standard Programs and Processes	Groundwater - Solid Waste Environmental Compliance and Operations	TVA-SPP-05.052 Rev. 0000 Page 6 of 11
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3.1.4 TVA Management (continued)

- D. Ensure environmental risks are addressed in business planning.
- E. Ensure proper management of environmental documents and monitoring data.
- F. Ensure proper tracking of environmental events and performance; monitor periodically for acceptance, trends, and plans; determine cause and proper correction for the deviation; address gaps and share, as appropriate, lessons learned and best practices.

3.1.5 Other Employees and Contractors

Together with TVA Management execute the following functions in order to maintain environmental compliance:

- A. Properly execute operational procedures, processes, and environmental controls, including contract work, to maintain environmental performance. Incorporate communicated changes in environmental permits and regulations into work practices. Adhere to environmental considerations as directed by the procurement organization.
- B. Identify environmental risks and communicate for mitigation discernment, including complying with NEPA.
- C. Familiarize themselves with the groundwater requirements in effect for the specific TVA site being served.
- D. Properly manage environmental documents.
- E. Properly track and report environmental performance. Report environmental events and significant near misses, participate in cause evaluation and implementation of corrective actions. Share lessons learned and best practices, applying as appropriate.

TVA Standard Programs and Processes	Groundwater - Solid Waste Environmental Compliance and Operations	TVA-SPP-05.052 Rev. 0000 Page 7 of 11
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3.2 Instructions

3.2.1 Training

There is no required training for the purposes of this document.

3.2.2 Groundwater Monitoring Plan Submittal and Modification

Remediation actions, solid waste landfill permits and closure plans for ash or gypsum ponds under National Pollutant Discharge Elimination System (NPDES) permit typically require installation and sampling of several groundwater monitoring wells, and reporting of those results. Requirements for sample collection and analysis are included in site-specific groundwater monitoring plans developed to meet regulatory requirements.

- A. Site-specific groundwater monitoring plans, as required by EPA, state, and other regulatory agencies, are developed by GCP&S with input from EC&O or other TVA organizations. The monitoring requirements are documented and tracked in the appropriate work management system and provide for the following:
 - 1. The location of each sampling point / Well ID
 - 2. Staff collecting the sample
 - 3. Date and time of collection
 - 4. Water / product level measurements
 - 5. Purge water requirements (collection and documentation)
 - 6. The sample parameters
 - 7. Sample frequency
 - 8. Quality control sample frequency
 - 9. Sample documentation required
 - 10. Sample type, size, and type of sample bottle
 - 11. Preservation method
 - 12. Sample holding time
 - 13. Chain of custody requirements
- B. Groundwater monitoring plans and modifications are submitted for regulatory approval by EC&O, coordinating with GCP&S or other TVA organizations to review and comment.
- C. Sample analysis must conform to permit/groundwater monitoring plan specifications. Technical Instruction guidance for sampling is contained in ENV-TI-05.80.xx series.

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3.2.3 Groundwater Well Installation, Maintenance, and Closure

Placement/location, installation, maintenance and closure of groundwater monitoring wells typically requires permits or state notifications, and adherence to state standards. GCP&S and other TVA organizations notify EC&O of any planned well installation, maintenance, and closure activities. Information required for permits or notifications will be provided by the organization planning the work to EC&O for submittal to the state. Notification timeframes vary by state and must be coordinated with EC&O. EC&O will notify the appropriate TVA organization when approval is obtained and work can begin.

GCP&S and other TVA organizations ensure that groundwater wells are installed, maintained, and closed when no longer needed in accordance with regulatory requirements and permit conditions, and work is only conducted after necessary approvals are obtained. Properly certified well drillers must be used and certifications are the responsibility of the well driller.

Well closure includes, but is not limited to:

- State notification, and if required, approval
- Removal of well pad and bollards
- Overdrilling of the well casing and screen material to at least five feet below the well depth and remmie-backfill the hole from the bottom up with high solids bentonite grout to ground surface; if overdrilling is not possible, knock out the bottom well plug and tremmie-backfill the well from the bottom up with high solids bentonite grout
- If well is left in place, remove the top five feet of well casing materials
- Level, seed and straw ground surface
- Remove well from TVA well inventory

GCP&S maintains an inventory of open and closed coal combustion residue (CCR) wells. The inventory is reviewed annually and remediation well inventory is incorporated by EC&O.

3.2.4 Routine Groundwater Reporting for CCR Sites

Groundwater sampling and reporting must be conducted in accordance with the groundwater monitoring plan and regulatory requirements. Technical Instruction guidance for sampling is contained in ENV-TI-05.80.xx series. Groundwater monitoring reports are written in accordance with EC&O guidance and template instruction.

Reports to the state are required to be submitted within 60 days from the last day of sampling. EC&O will complete the reports and provide them to GCP&S allowing at least three working days for review prior to submittal for the asset owner signature. GCP&S will provide the signed reports to EC&O for submittal to the regulatory agency.

Reports required by the federal CCR rule are provided by GCP&S to EC&O allowing at least 3 working days for review before PE certification is obtained by GCP&S. The certified report is placed in the operating record and on the website by GCP&S; they also send an email notification to the state regulatory agencies as required by the rule, with a copy to EC&O.

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3.2.5 Groundwater Reporting for Remediation Sites

Groundwater sampling and reporting not related to CCR sites must be conducted in accordance with regulatory requirements. Technical Instruction guidance for sampling is contained in ENV-TI-05.80.xx series.

Reports to the state are required to be submitted within 60 days from the last day of sampling. Field reports are submitted by the EC&O field crew to the EC&O remediation specialist within 5 days. The remediation specialist reviews, produces, and obtains signature of the TVA organization for the groundwater report.

3.2.6 Exceedance Reporting

State regulations require notification of groundwater exceedances within varying timeframes of receiving unvalidated sampling data from laboratories. The TVA organization responsible for the groundwater sampling at the site will provide exceedance information to the EC&O groundwater specialist within 24 hours of receipt of the data from the laboratory. EC&O groundwater specialist will report exceedances to state regulators within the required timeframe.

3.2.7 Assessments

EC&O will periodically assess compliance with groundwater monitoring and reporting programs via self-evaluations and site walkdowns.

4.0 RECORDS

4.1 QA Records

None

4.2 Non-QA Records

Waste-related records identified in the Environmental Records Matrix must be processed and maintained in accordance with TVA Document Services Records Management Procedures.

5.0 DEFINITIONS

Coal Combustion Residuals (CCR) - Solids (fly ash, bottom ash, gypsum, boiler slag, etc.) produced from the combustion of coal, coal blends, and emission additives (e.g. Trona).

Groundwater Monitoring Plan - A site specific plan detailing monitoring locations and requirements, approved by the state as part of the facility solid waste permit or corrective action plan required for remediation sites.

Landfill Permit - Any permit or equivalent document or requirements issued by the Administrator of EPA or where appropriate, by the Director of an approved State, to regulate CCR waste storage pursuant to 40 CFR Part 258.

Operation(s) - TVA sites, plants, facilities, or support activities that are subject to environmental regulatory requirements or could have an impact on the environment.

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6.0 REFERENCES

- A. 40 CFR Part 258, Criteria for Municipal Solid Waste Landfills; 40 CFR 257 Subpart D, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments; 40 CFR 257 and 261, Coal Combustion Residuals rule
- B. ADEM Consent Decree 20-CV-2013-90012
- C. Agreed Temporary Injunction - No. 15-23-JV (GAF)
- D. Alabama, Kentucky, and Tennessee Solid Waste Programs and regulations, including industrial and construction demolition waste permits
- E. COO-SPP-22.300, Corrective Action Program
- F. Individual Landfill Permits for TVA organizations
- G. Site-specific Groundwater Monitoring Plans for TVA organizations
- H. TDEC Commissioners Order - OGC15-0177

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**Source Notes
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Requirements Statement	Source Document	Implementing Statement
<p>“TVA remains committed to complying with environmental laws and regulations, with a goal of continuous improvement.”</p>	<p>TVA Environmental Policy</p>	<p>C1</p>
<p>The Criteria for Municipal Solid Waste Landfills along with State implementing laws and regulations establishes the basic structure for regulating CCR waste disposal.</p>		<p>C2</p>



Figure 1. Aerial view of the proposed undertaking.

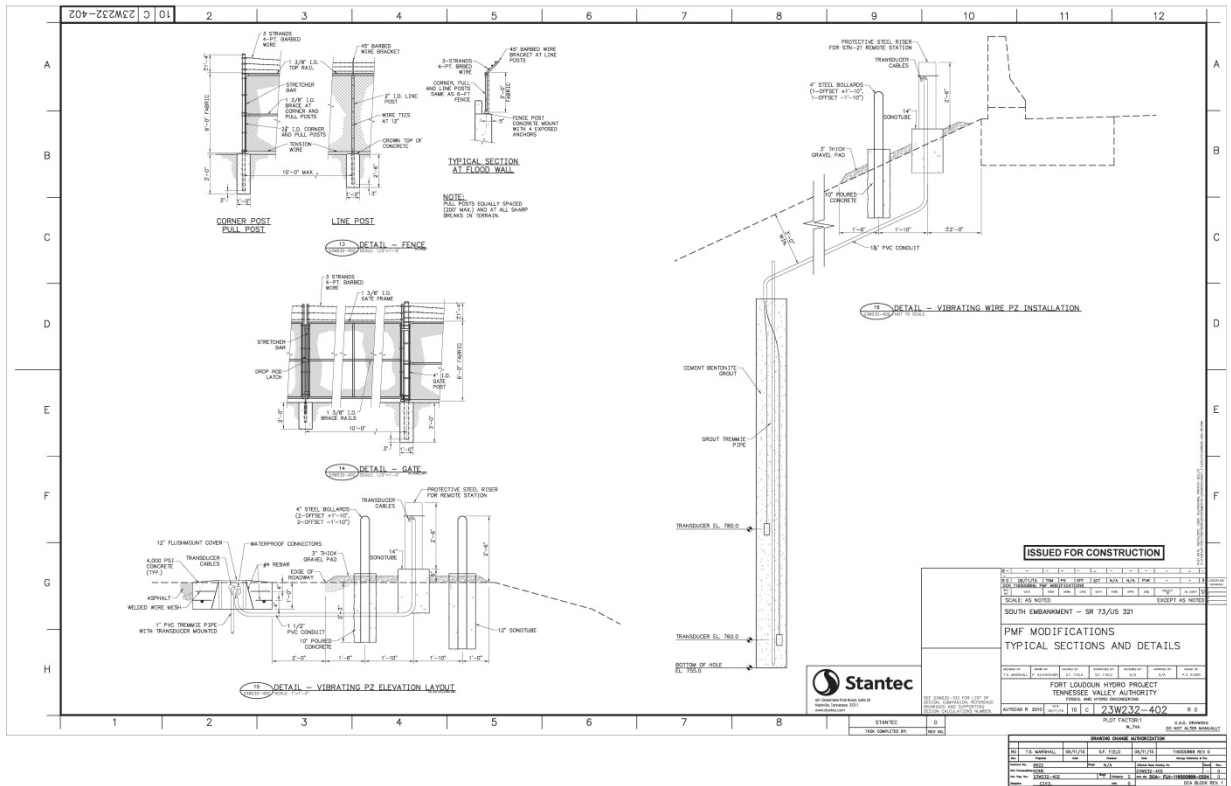


Figure 2. Design of Piezometers and Bollards.

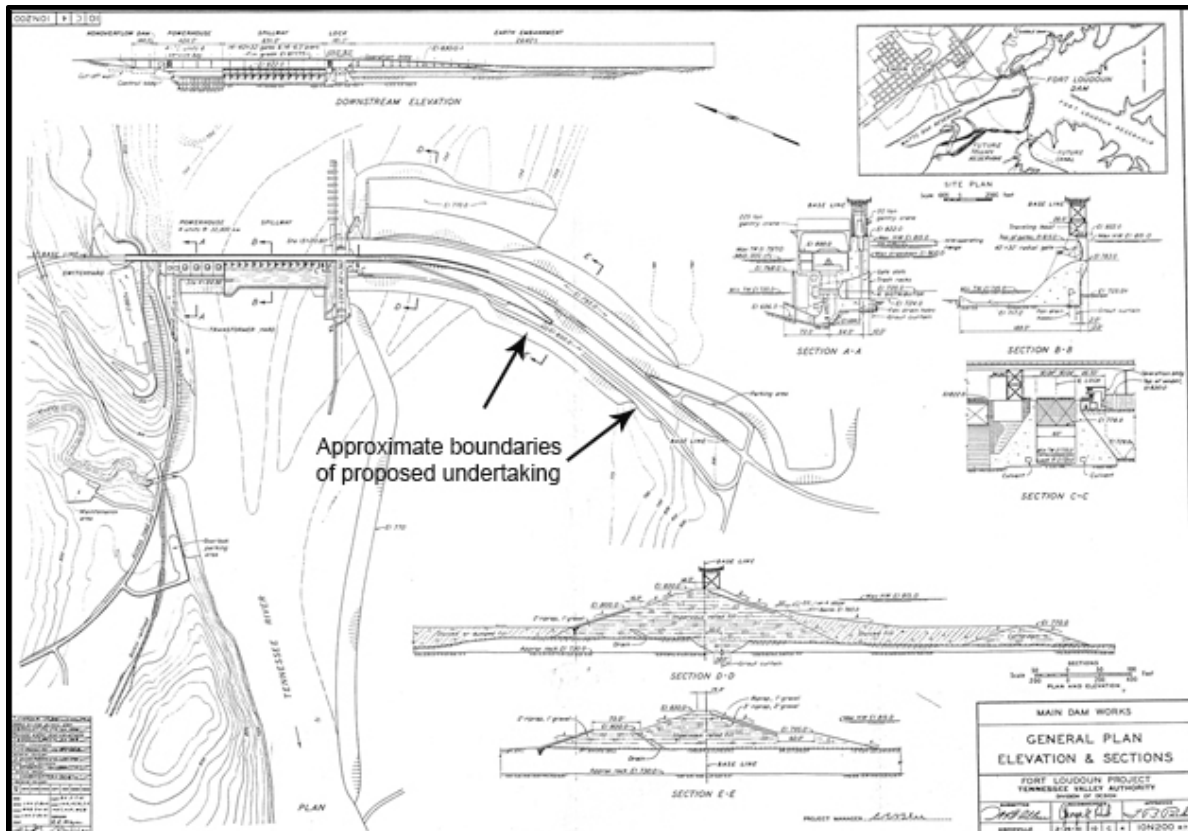


Figure 3. Schematic of the Fort Loudoun Dam construction with the approximate location of the proposed undertaking (TVA Archives).



Figure 4. Photograph of the construction of the South Embankment at the Fort Loudoun Dam (downstream side) showing the degree of disturbance. View to the south. (TVA archives).



Figure 5. Architectural APE.



Figure 6. View of project area from Fort Loudoun Dam. View to the south.



Figure 7. View of Fort Loudoun Dam from the project area. View to the north.



Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, Tennessee 37902

November 3, 2017

Mr. E. Patrick McIntyre, Jr.
Executive Director
Tennessee Historical Commission
2941 Lebanon Pike
Nashville, Tennessee 37243-0442

Dear Mr. McIntyre:

TENNESSEE VALLEY AUTHORITY (TVA), FORT LOUDOUN HYDROELECTRIC PLANT,
MAINTENANCE ROAD, PIEZOMETERS, AND LAYDOWN AREAS, LOUDON COUNTY,
TENNESSEE

TVA is proposing to construct a maintenance road to connect the south embankment of Fort Loudoun Dam to an existing TVA service road, install up to six piezometers along the proposed maintenance road, and the removal of an existing monitoring well (35.97859463°, - 84.2414081°). This work is being done in support of the permanent dam modifications which we previously consulted with your office on in 2011. To perform this work TVA will need to utilize two areas for temporary laydown yards (total of approximately three acres) for office trailers, equipment, materials, and parking necessary to execute the proposed project, (Figure 1). The proposed maintenance road would be paved and approximately 650 long and 18 feet wide. The proposed piezometers are approximately 2.5 feet high and would be flanked by bollards (Figure 2). The monitoring well proposed for removal will be over-drilled by a drilling truck and filled with grout.

TVA determined the area of potential effects (APE) for archaeological resources to be all areas where ground disturbing activities would occur. The archaeological APE was heavily modified and impacted by the construction of the Fort Loudoun Lock and Dam (Figure 3 & 4). It is TVA's opinion that no archaeological sites would be affected by the proposed undertaking.

TVA has determined the APE for above ground architectural resources to be areas within 0.5-mile radius of the proposed undertaking and have a direct line of sight to the undertaking (Figure 5).

TVA Cultural Compliance staff conducted a desktop review and only one architectural resource, Fort Loudoun Lock and Dam, was located within the architectural APE. The Fort Loudoun Lock and Dam, which is included within the Multiple Property Documentation Form, "Historical Resources of the Tennessee Valley Authority Hydroelectric Project, 1933-1979", was recently listed in the National Register of Historic Places (NRHP) under criterion A and C for its historical and engineering significance.

Mr. E. Patrick McIntyre, Jr.
Page 2
November 3, 2017

The proposed undertaking will have a direct line of sight to the Fort Loudoun Lock and Dam. TVA finds that the proposed undertaking would result in a visual effect to Fort Loudoun Lock and Dam (Figures 6 & 7), however, the effect would not be adverse as the viewshed has been previously compromised by the recent 321 road and bridge construction. Therefore, TVA finds that the undertaking would not result in an adverse effect on Fort Loudoun Lock and Dam.

Pursuant to 36 CFR Part 800.5(b), we are seeking your concurrence with TVA's finding that the undertaking would not adversely affect historic properties eligible for listing or listed on the NRHP.

Pursuant to 36 CFR Part 800.3(f)(2), TVA is consulting with federally recognized Indian tribes regarding properties within the proposed project's APE that may be of religious and cultural significance to them and eligible for the NRHP.

If you have any questions, please contact Marianne Shuler by phone, (865) 632-2464 or by email, mshuler@tva.gov.

Sincerely,



Clinton E. Jones
Manager
Cultural Compliance

MMS:ABM
Enclosures

cc (Enclosures):

Ms. Jennifer Barnett
Tennessee Division of Archaeology
1216 Foster Avenue, Cole Bldg. #3
Nashville, Tennessee 37210

INTERNAL COPIES ONLY, NOT TO BE INCLUDED WITH OUTGOING LETTER:

A. Michelle Cagley, KFP 1T-KST
Susan R. Jacks, WT11A-K
M. Susan Smelley, BR 4A-C
Lori A. Whitehorse, WT 11D-K
ECM, WT CA-K



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

November 21, 2017

Mr. Clinton E. Jones
Tennessee Valley Authority
Biological and Cultural Compliance
400 West Summit Hill Drive
Knoxville, TN 37902

RE: FERC / Federal Energy Regulatory Commission, Fort Loudoun Hydroelectric Plant - Maintenance Road, Piezometers, and Laydown Areas, Loudon County, TN

Dear Mr. Jones:

Pursuant to your request, this office has reviewed documentation concerning the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Based on the information provided, we find that the project area contains a cultural resource eligible for listing in the National Register of Historic Places. We further find that the project as currently proposed will not adversely affect this historic property.

This office has no objection to the implementation of this project as currently planned. If project plans are changed or previously unevaluated archaeological resources are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Questions and comments may be directed to Justin Heskew at (615) 770-1092. We appreciate your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jsh